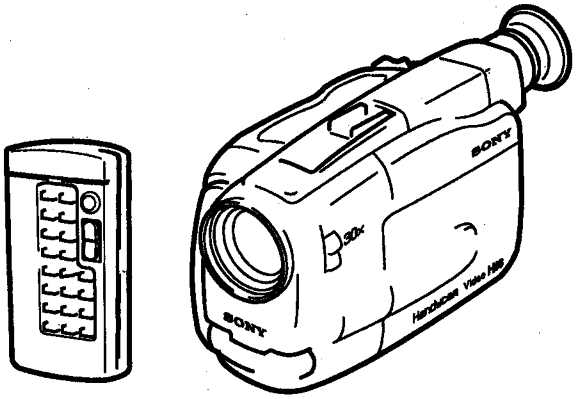
CCD-TRV31/TRV41/TRV51/TRV81
RMT-708/715

SERVICE MANUAL

US Model
Canadian Model
Tourist Model
CCD-TRV41/TRV81
E Model
Hong Kong Model
CCD-TRV31/TRV41/TRV51/TRV81



CCD-TRV81
RMT-715

Handycam
Video8
videoHi8
B MECHANISM

For MECHANISM ADJUSTMENTS, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL VII" (9-973-801-11).

SPECIFICATIONS

Video camera recorder

System

Video recording system
Two rotary heads, Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
NTSC color, EIA standards
Usable cassette
8mm video format cassette
CCD-TRV31/TRV41/TRV51:
standard 8
CCD-TRV81:
Hi8 or standard 8
Recording / Playback time (using 120 min. cassette)
SP mode: 2 hours
LP mode: 4 hours
Fastforward/rewind time (using 120 min. cassette)
Approx. 4 min.
Image device
CCD (Charge Coupled Device)
Viewfinder
Electronic viewfinder
Monochrome
Lens
Combined power zoom lens
Filter diameter 37 mm
CCD-TRV31:
15 x (Optical)
CCD-TRV41/TRV51/TRV81:
15 x (Optical), 60 x (Digital)
Focal distance
4.1 - 61.5 mm (3/16 - 2 1/2 in.)
39 - 585 mm (1 9/16 - 23 1/8 in.)
when converted to a 35 mm still camera
Color temperature
Auto
Minimum illumination*
CCD-TRV31/TRV51:
0.6 lux (F 1.4)
(visible minimum low light 0.3 lux)
CCD-TRV41/TRV81:
2 lux (F 1.4)
Illumination range
CCD-TRV31/TRV51:
0.6 lux to 100,000 lux
CCD-TRV41/TRV81:
2 lux to 100,000 lux
Recommended illumination
More than 100 lux

* Minimum illumination expresses the light level a camcorder requires to produce a picture. Visible minimum low light expresses the light level to produce a visible signal.

LCD screen

Input and output connectors

S video input/output (CCD-TRV81 only)
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 Ω, unbalanced
Chrominance signal: 0.286 Vp-p, 75 Ω, unbalanced
Video input/output
Phono jack, 1 Vp-p, 75 Ω, unbalanced
112,320 (480 x 234)
Audio input/output
CCD-TRV31: Phono jack
CCD-TRV41/TRV51/TRV81:
Phono jacks (2: stereo L and R)
327 mV, (at output impedance 47 kΩ) impedance less than 2.2 kΩ
RFU DC OUT
Special minijack, DC 5V
Headphone jack (CCD-TRV41/TRV51/TRV81)
Stereo minijack (ø 3.5 mm)
Earphone jack (CCD-TRV31)
Monaural, phono jack
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
Minijack, 0.388 mV low impedance with 2.5 to 3.0 V DC, output impedance 6.8 kΩ (ø 3.5 mm)
CCD-TRV31: Monaural type
CCD-TRV41/TRV51/TRV81: Stereo type
Speaker
Dynamic speaker
Intelligent accessory shoe
8-pin connector

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption
During camera recording using LCD
CCD-TRV31: 5.1 W
CCD-TRV41: 5.4 W
CCD-TRV51: 5.8 W
CCD-TRV81: 6.1 W
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions (Approx.)
106 x 127 x 203 mm
(4 1/4 x 5 x 8 in.) (w/h/d)
Mass (Approx.)
CCD-TRV31/TRV41:
970 g (2 lb 2 oz)
CCD-TRV51/TRV81:
1.0 kg (2 lb 3 oz)
excluding the battery pack, lithium battery, cassette and shoulder strap
CCD-TRV31/TRV41:
1.1 kg (2 lb 7 oz)
CCD-TRV51/TRV81:
1.1 kg (2 lb 8 oz)
including the battery pack NP-F530, lithium battery CR2025, cassette and shoulder strap
Microphone
CCD-TRV31: Monaural type
CCD-TRV41/TRV51/TRV81: Stereo type
Supplied accessories
See page 1-2.

AC power adaptor

Power requirements
110 - 240 V AC, 50/60 Hz
Power consumption
25 W
Output voltage
DC OUT: 8.4 V, 1.9 A in operating mode
Battery charge terminal: 8.4 V, 1.4 A in charge mode
Application
Sony battery packs NP-F530, NP-F730, lithium ion type
Operating temperature
0°C to 40°C (32°F to 104°F)
Storage temperature
–20°C to +60°C (–4°F to +140°F)
Dimensions (Approx.)
81 x 45 x 163 mm
(3 1/4 x 1 13/16 x 6 1/2 in.)
(w/h/d) including projecting parts and controls
Mass (Approx.)
560 g (1 lb 3 oz)

Design and specifications are subject to change without notice.

— Continued on next page —

8 VIDEO CAMERA RECODER
CCD-TRV31/TRV41/TRV51

Hi8 VIDEO CAMERA RECODER
CCD-TRV81

MICROFILM

SONY®

TYPE FOR DIFFERENCE OF FUNCTIONS

	REMOTE COMMANDER	IMAGE DIVICE	Hi8/ STANDARD 8	STEADY SHOT	DIGITAL ZOOM	TBC & DNR	TIME CODE	STEREO/ MONAURAL	LCD MONITOR
TRV31	RMT-708	510H	STANDARD 8	—	—	—	—	MONAURAL	3 INCH
TRV41	RMT-708	760H	STANDARD 8	○	○	—	—	STEREO	4 INCH
TRV51	RMT-708	510H	STANDARD 8	—	○	—	—	STEREO	3 INCH
TRV81	RMT-715	760H	Hi8	○	○	○	○	STEREO	4 INCH
		Note 1	Note 2	Note 3	Note 4	Note 5	Note 6		

Note 1: 510H (Total picture prime of 270,000, Available picture prime of 250,000)
760H (Total picture prime of 470,000, Available picture prime of 300,000)
2: Hi8 (with S VIDEO terminal)
3: ○ (with SE-50 board)
4: ○ (IC114 of VC-177 board)
5: ○ (IC115 of VC-177 board)
6: ○ (IC128 of HI-34 board)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

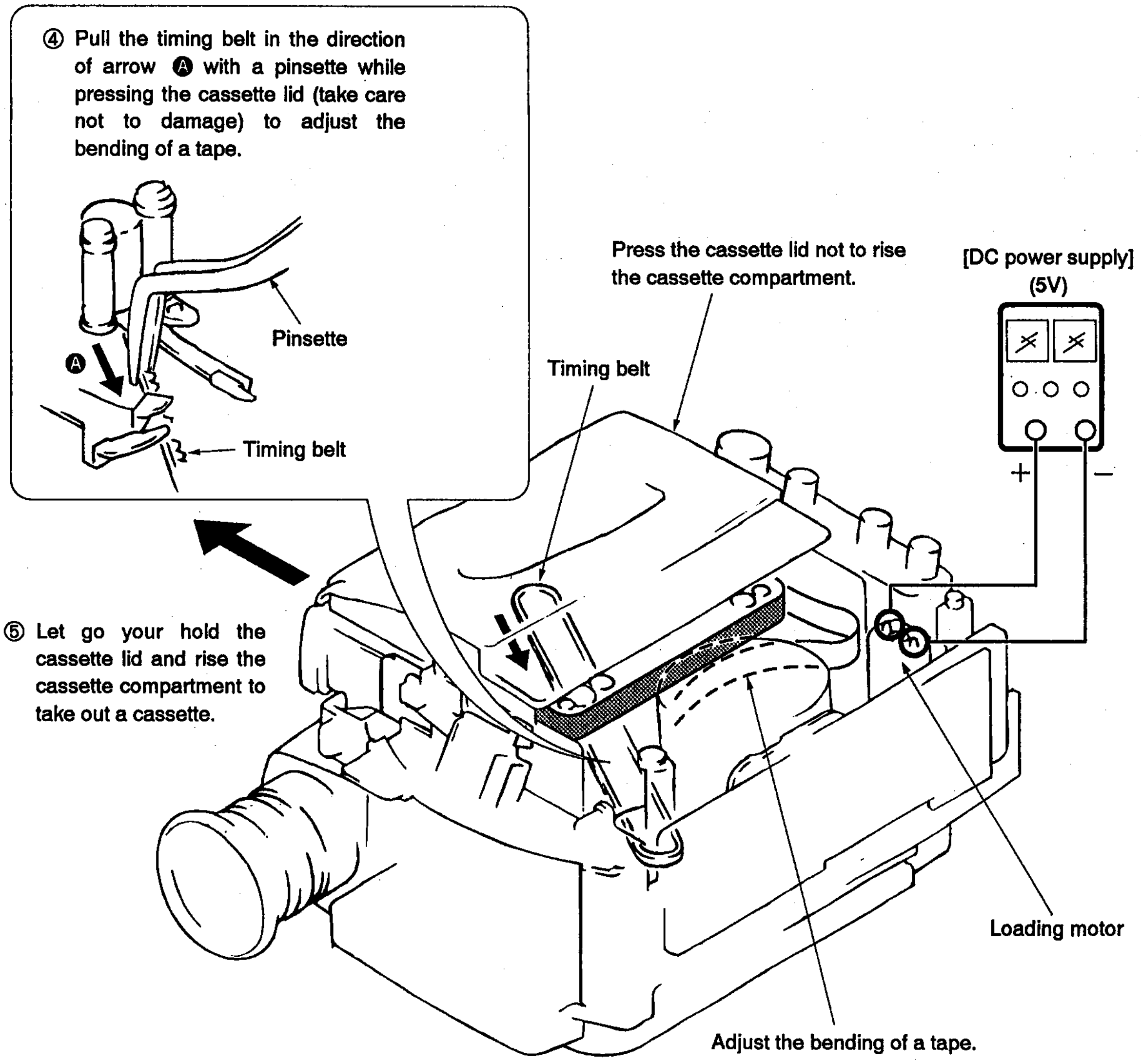
ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SERVICE NOTE

TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT).

① Refer to 2-2. to remove the Front panel assembly.
② Refer to 2-3. to remove the Cabient (L) assembly.
③ Add +5V from the DC power supply and unload with a pressing the cassette lid.



④ Pull the timing belt in the direction of arrow Ⓐ with a pinsette while pressing the cassette lid (take care not to damage) to adjust the bending of a tape.

⑤ Let go your hold the cassette lid and rise the cassette compartment to take out a cassette.

Press the cassette lid not to rise the cassette compartment.

Adjust the bending of a tape.

Pinsette
Ⓐ
Timing belt
Timing belt
[DC power supply]
(5V)
+
−
Loading motor

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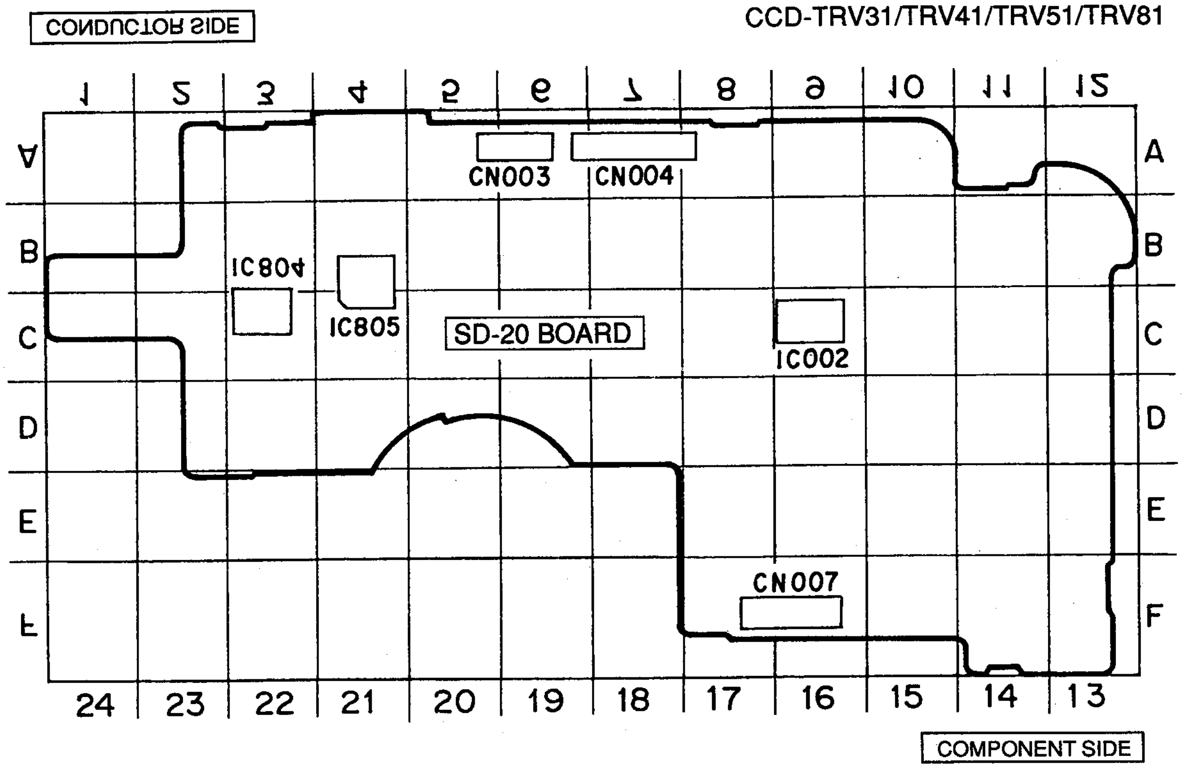
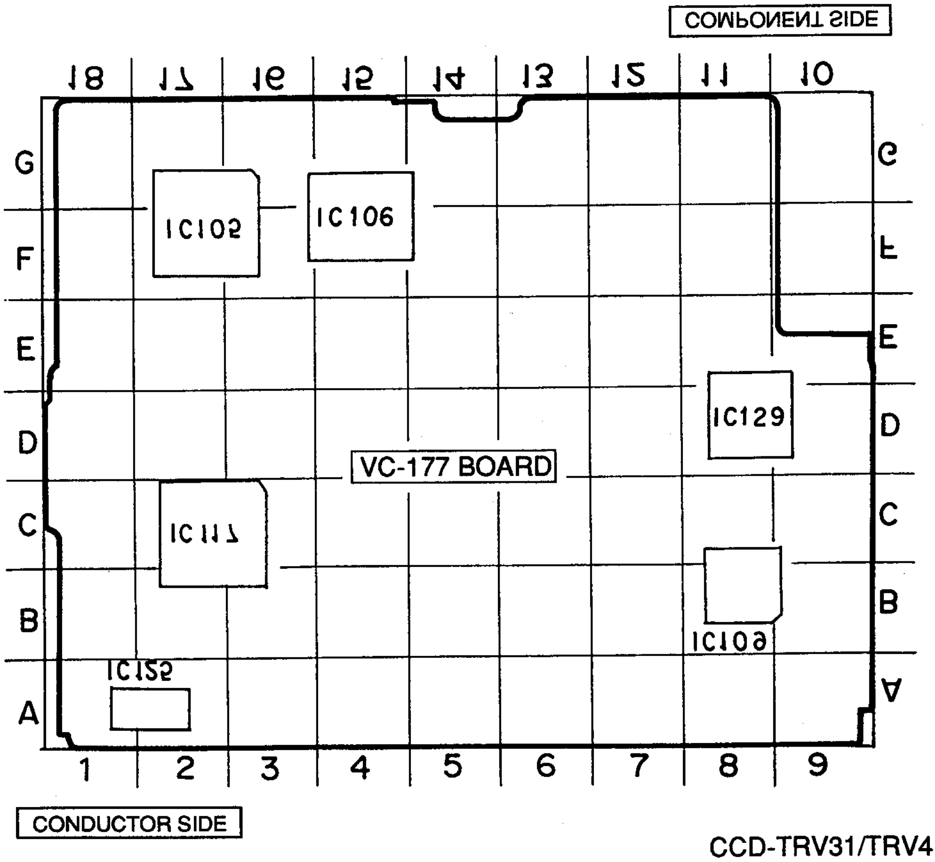
There is the color reproduction standard frame at the back of the book.

<PARTS REFERENCE SHEET>
You can find the parts position of mount locations applying to boards of a set.

Take a copy CAMERA COLOR REPRODUCTION FRAME and Parts reference sheets with a clear sheet for use.


CONDUCTOR SIDE
CCD-TRV31/TRV41/TRV51/TRV81
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
CN003
CN004
IC804
IC805
SD-20 BOARD
IC002
CN007
24
23
22
21
20
19
18
17
16
15
14
13
COMPONENT SIDE


COMPONENT SIDE
18
17
16
15
14
13
12
11
10
G
F
E
D
C
B
A
IC102
IC106
IC129
VC-177 BOARD
IC117
IC103
IC125
1
2
3
4
5
6
7
8
9
CONDUCTOR SIDE

CCD-TRV31/TRV41/TRV51/TRV81

CCD-TRV31/TRV41/TRV51/TRV81

SECTION 1
GENERAL

This section is extracted from instruction manual of CCD-TRV31/TRV41/TRV51/TRV81.

Before you begin

Using this manual

The instructions in this manual are for the four models listed below. Before you start reading this manual and operating the unit, check your model number by looking at the bottom of your camcorder. The CCD-TRV81 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TRV81 only."
As you read through this manual, buttons and settings on the camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.
As indicated with ♪ in the illustrations, you can hear the beep sound to confirm your operation.

Antes de comenzar

Utilización de este manual

Las instrucciones de este manual son para los cuatro modelos indicados más abajo. Antes de comenzar a leer este manual y de utilizar la unidad, compruebe el número de modelo observando la base de su videocámara. La CCD-TRV81 es el modelo utilizado para fines de ilustración. En caso contrario, el nombre del modelo se indicará en las ilustraciones.
Cualquier diferencia en la operación se indicará claramente en el texto, por ejemplo, "CCD-TRV81 solamente".
Cuando lea este manual, las teclas y ajustes de la videocámara se mostrarán en mayúsculas.
p. ej.: Ponga el selector POWER en CAMERA.
Como se indica con ♪ en las ilustraciones, usted podrá oír un pitido para confirmar su operación.

Types of differences **Tipos de diferencias**

Model number **Número de modelo**	CCD-TRV31	CCD-TRV41	CCD-TRV51	CCD-TRV81
System Sistema	8	8	8	Hi8
Zoom Zoom	15x	15x ←→ 60x	15x ←→ 60x	15x ←→ 60x
Wide mode Modo de pantalla amplia	—	●	●	●
Steady Shot Videofilmación estable	—	●	—	●
Auto Date Fechador automático	●	●	●	—
Index Búsqueda de señales de índice	—	—	—	●
RC time code Código de tiempo RC	—	—	—	●
Data code Código de datos	—	—	—	●
Audio Audio	monaural Monoaural	stereo Estéreo	stereo Estéreo	stereo Estéreo

Using this manual

Note on TV color systems

TV color systems differ from country to country. To view your recordings on a TV, you need an NTSC system-based TV.

Precaution on copyright

Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Precautions on camcorder care

- **Do not let sand get into the camcorder. When you use the camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [a].**
- **Do not let the camcorder get wet. Keep the camcorder away from rain and sea water. Letting the camcorder get wet may cause the unit to malfunction, and sometimes this malfunction cannot be repaired [b].**
- **Never leave the camcorder exposed to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight [c].**

Utilización de este manual

Nota sobre los sistemas de televisión en color

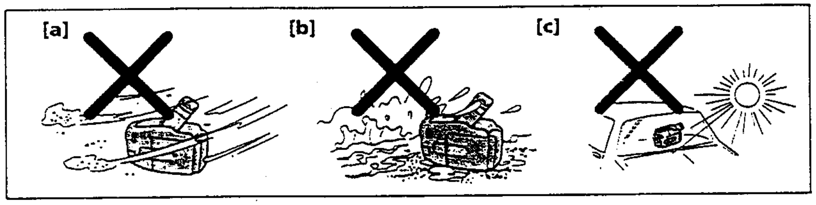
Los sistemas de televisión en color difieren de acuerdo con los países.
Si desea ver su grabación en un televisor, éste deberá estar basado en el sistema PAL.

Precaución sobre los derechos de autor

Los programas de televisión, películas, videocintas y demás materiales pueden tener reservado el derecho de reproducción. La grabación no autorizada de tales materiales puede ir en contra de lo dispuesto por las leyes sobre los derechos de autor.

Precauciones sobre el cuidado de la videocámara

- **No permita que entre arena en la videocámara. Cuando utilice la videocámara en una playa arenosa o en un lugar polvoriento, protéjala de la arena o del polvo. La arena o el polvo pueden causar malos funcionamientos que a veces no podrán repararse [a].**
- **No deje que la videocámara se moje. Proteja la videocámara de la lluvia o del agua de mar. Pueden causar malos funcionamientos que a veces no podrán repararse [b].**
- **No deje la videocámara expuesta a temperaturas superiores a los 60°C, como en un automóvil aparcado al sol o bajo la luz solar directa [c].**



Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

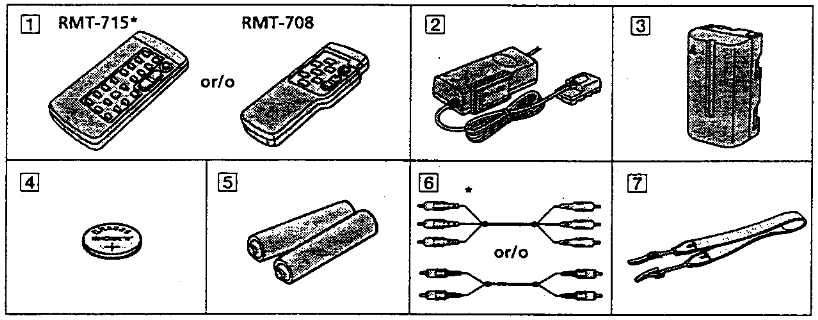
El contenido de la grabación no podrá remunerarse si la grabación o reproducción no se realiza debido a un mal funcionamiento de la videocámara, el videocassette, etc.

Checking supplied accessories

Check that the following accessories are supplied with your camcorder.

Comprobación de los accesorios suministrados

Compruebe si los accesorios siguientes han sido suministrados con su videocámara.



1 **Wireless Remote Commander** (1) (p. 106)
* for Hi8 model

2 **AC-V316 AC power adaptor** (1) (p. 8, 31)

3 **NP-F530 Battery pack** (1) (p. 8, 31)

4 **CR2025 Lithium Battery** (1) (p. 78)
The lithium battery is already installed in your camcorder.

5 **R6 (size AA) battery for Remote Commander** (2) (p. 107)

6 **A/V connecting cable** (1) (p. 62)
* for stereo model

7 **Shoulder strap** (1) (p. 108)

1 **Telemando inalámbrico** (1) (pág. 106)
* para el modelo Hi8

2 **Adaptador de alimentación de CA AC-V316** (1) (pág. 8, 31)

3 **Batería NP-F530** (1) (pág. 8, 31)

4 **Pila de litio CR2025** (1) (pág. 78)
La pila de litio ya está instalada en la videocámara.

5 **Pilas R6 (tamaño AA) para el telemando** (2) (pág. 107)

6 **Cable conector de audio/vídeo** (1) (pág. 62)
* para el modelo estéreo

7 **Bandolera** (1) (pág. 108)

Charging and installing the battery pack

Before using your camcorder, you first need to charge and install the battery pack. To charge the battery pack, use the supplied AC power adaptor.
This camcorder operates with the "InfoLITHIUM" battery such as NP-F530/F730. If you use any other battery to operate your camcorder, the camcorder may not operate or the battery life may be shorten.

InfoLITHIUM is a trademark of Sony Corporation.

Charging the battery pack

Charge the battery pack on a flat surface without vibration.

(1) Connect the power cord to a wall outlet.
(2) Align the surface of the battery pack indicated by the ▶ mark with the edge of the terminal shutter of the AC power adaptor. Then fit and slide the battery pack in the direction of the arrow. The CHARGE lamp (orange) lights up. Charging begins.

When the CHARGE lamp goes out, **normal charge** is completed. For **full charge**, which allows you to use the battery longer than usual, leave the battery pack in place for approximately one hour. Unplug the unit from the wall outlet, then remove the battery pack and install it into the camcorder. You can also use the battery pack before it is completely charged.

Carga e instalación de la batería

Antes de utilizar la videocámara, tendrá que cargar e instalar la batería. Para cargar la batería, utilice el adaptador de CA suministrado.
Esta videocámara funciona con una batería "InfoLITHIUM", como la NP-F530/F730. Si utilizase otra batería, la videocámara podría no funcionar, o la duración de la batería podría acortarse.

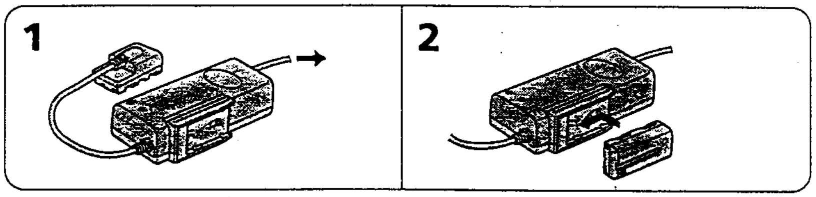
InfoLITHIUM es marca comercial de Sony Corporation.

Carga de la batería

Cargue la batería en un lugar nivelado sin vibraciones.

(1) Conecte el cable de alimentación a una toma de la red.
(2) Alinee la superficie de la batería indicada con la marca ▶ con el borde del obturador de los terminales del adaptador de CA.
Después encaje y deslice la batería en el sentido de la flecha. Se encenderá la lámpara CHARGE (anaranjada). Se iniciará la carga.

Cuando se apague la lámpara CHARGE, habrá finalizado la **carga normal.** Para **cargar completamente** la batería, déjela así durante aproximadamente una hora. Desenchufe la unidad de la toma de la red, quite la batería e instálela en la videocámara. Usted también podrá utilizar la batería antes de que se haya cargado por completo.



Charging time

Battery pack	Charging time* (min.)
NP-F530 (supplied)	170 (110)
NP-F730	250 (190)

The time required for a normal charge is indicated in parentheses.

* Approximate minutes to charge an empty battery pack using the supplied AC power adaptor. (Lower temperatures require a longer charging time.)

Battery life

Upper numbers are the time when recording with the viewfinder. Lower numbers are the time when recording with the LCD screen. Using both will further reduce recording time.

CCD-TRV31

Battery pack	Continuous recording time*	Typical recording time**	Playing time on LCD
NP-F530 (supplied)	125 (115) 95 (85)	75 (70) 55 (50)	100 (85)
NP-F730	275 (245) 210 (190)	165 (145) 125 (115)	215 (195)

CCD-TRV41

Battery pack	Continuous recording time*	Typical recording time**	Playing time on LCD
NP-F530 (supplied)	120 (105) 90 (80)	70 (65) 55 (50)	90 (80)
NP-F730	270 (240) 200 (180)	160 (145) 120 (110)	205 (185)

CCD-TRV51

Battery pack	Continuous recording time*	Typical recording time**	Playing time on LCD
NP-F530 (supplied)	120 (110) 80 (70)	70 (65) 50 (40)	80 (70)
NP-F730	270 (245) 185 (165)	160 (145) 110 (100)	185 (165)

Tiempo de carga

Batería	Tiempo de carga* (min.)
NP-F530 (suministrada)	170 (110)
NP-F730	250 (190)

El tiempo requerido para la carga normal se indica entre paréntesis.

* Minutos aproximados para cargar una batería descargada utilizando el adaptador de CA suministrado. (Cuando las temperaturas sean bajas se tardará más tiempo en realizar la carga.)

Duración de la batería

Los números superiores indican el tiempo de videofilmación con el visor. Los números inferiores indican el tiempo de videofilmación con la pantalla de cristal líquido. Si utiliza ambos, el tiempo de videofilmación se reducirá más.

CCD-TRV31

Batería	Tiempo de video-filmación continua*	Tiempo de video-filmación típico**	Tiempo de reproducción en la pantalla de cristal líquido
NP-F530 (suministrada)	125 (115) 95 (85)	75 (70) 55 (50)	100 (85)
NP-F730	275 (245) 210 (190)	165 (145) 125 (115)	215 (195)

CCD-TRV41

Batería	Tiempo de video-filmación continua*	Tiempo de video-filmación típico**	Tiempo de reproducción en la pantalla de cristal líquido
NP-F530 (suministrada)	120 (105) 90 (80)	70 (65) 55 (50)	90 (80)
NP-F730	270 (240) 200 (180)	160 (145) 120 (110)	205 (185)

CCD-TRV51

Batería	Tiempo de video-filmación continua*	Tiempo de video-filmación típico**	Tiempo de reproducción en la pantalla de cristal líquido
NP-F530 (suministrada)	120 (110) 80 (70)	70 (65) 50 (40)	80 (70)
NP-F730	270 (245) 185 (165)	160 (145) 110 (100)	185 (165)

Charging and installing the battery pack

Carga e instalación de la batería

CCD-TRV81

Battery pack	Continuous recording time*	Typical recording time**	Playing time on LCD
NP-F530 (supplied)	115 (105) 75 (65)	70 (65) 45 (40)	70 (65)
NP-F730	265 (240) 170 (155)	160 (145) 100 (95)	170 (150)

Numbers in parentheses indicate the time when you use a normally charged battery.
Battery life will be shorter if you use the camcorder in a cold environment.

* Approximate continuous recording time indoors.

** Approximate minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Notes on remaining battery time indication during recording

- When you use the InfoLITHIUM battery pack, remaining battery time is displayed in the viewfinder or on the LCD screen. However, the indication may not be displayed properly, depending on using conditions and circumstances.
- When you close the LCD panel and open it again, it takes about 2 minutes for the correct remaining time to be displayed.

CCD-TRV81

Batería	Tiempo de video-filmación continua*	Tiempo de video-filmación típico**	Tiempo de reproducción en la pantalla de cristal líquido
NP-F530 (suministrada)	115 (105) 75 (65)	70 (65) 45 (40)	70 (65)
NP-F730	265 (240) 170 (155)	160 (145) 100 (95)	170 (150)

Los números entre paréntesis indican el tiempo cuando utilice una batería normalmente cargada. La duración de la batería será más corta si utiliza la videocámara en un ambiente frío.

* Tiempo aproximado de videofilmación continua en interiores.

** Minutos aproximados cuando videofilme repitiendo las operaciones de inicio/parada o la utilización del zoom y la conexión/desconexión de la alimentación. La duración real de la batería puede ser más corta.

Notas sobre la indicación de tiempo restante de batería durante la videofilmación

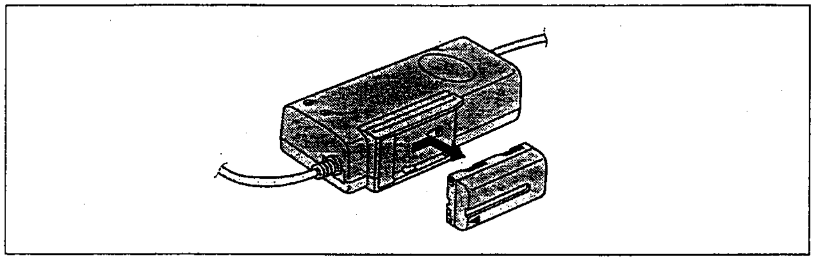
- Cuando utilice la batería InfoLITHIUM, el tiempo restante de la misma se visualizará en el visor o en la pantalla de cristal líquido. Sin embargo, la indicación puede no visualizarse adecuadamente dependiendo de las condiciones de utilización y las circunstancias.
- Cuando cierre la pantalla de cristal líquido y vuelva a abrirla, la visualización del tiempo de batería restante correcto tardará 2 minutos en visualizarse.

To remove the battery pack

Slide the battery pack in the direction of the arrow.

Para extraer la batería

Deslice la batería en el sentido de la flecha.



Notes on charging the battery pack

- The CHARGE lamp will remain lit for a while even if the battery pack is removed and the power cord is unplugged after charging the battery pack. This is normal.
- If the CHARGE lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord again.
- You cannot operate the camcorder using the AC power adaptor while charging the battery pack.
- When a fully charged battery pack is installed, the CHARGE lamp will light once, then go out.

Notas sobre la carga de la batería

- La lámpara CHARGE permanecerá encendida durante un momento aunque extraiga la batería y desenchufe el cable de alimentación después de haber finalizado la carga. Esto es normal.
- Si la lámpara CHARGE no se enciende, desconecte el cable de alimentación. Después de un minuto aproximadamente, vuelva a conectar el cable.
- Usted no podrá utilizar la videocámara empleando el adaptador de CA mientras se esté cargando la batería.
- Cuando se instale una batería completamente cargada, la lámpara CHARGE se encenderá y después se apagará.

Charging and installing the battery pack

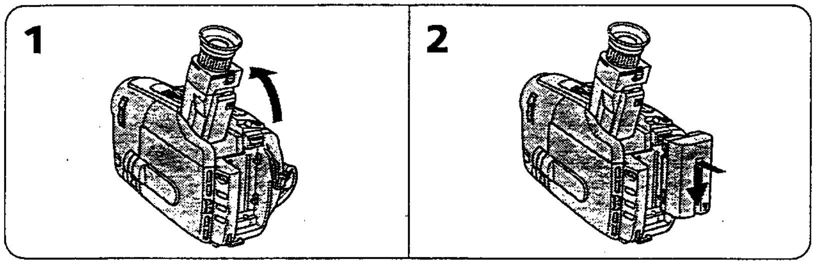
Carga e instalación de la batería

Installing the battery pack

(1) Lift up the viewfinder.
(2) Insert the battery pack in the direction of the ▼ mark on the battery pack. Slide the battery pack down until it catches on the battery release lever and clicks.

Instalación de la batería

(1) Levante el visor.
(2) Inserte la batería en el sentido de la marca ▼ de la misma. Deslice la batería hacia abajo hasta que quede enganchada en la palanca de liberación de la batería y chasquee.

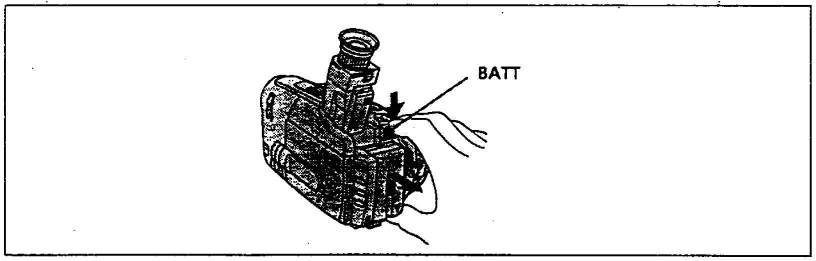


To remove the battery pack

While pressing BATT, slide the battery pack in the direction of the arrow.

Para extraer la batería

Manteniendo pulsado BATT, deslice la batería en el sentido de la flecha.



Inserting a cassette

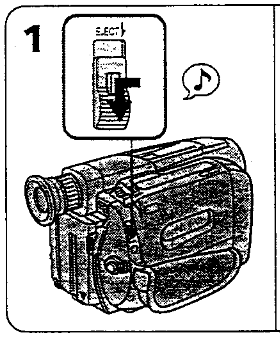
Make sure that the power source is installed.
When you want to record in the Hi8 system, use Hi8 video cassette **Hi8** (CCD-TRV81 only).

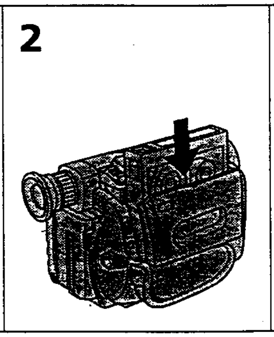
(1) While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow. The cassette compartment automatically lifts up and opens.
(2) Insert a cassette with the window facing out.
(3) Close the cassette compartment by pressing the "PUSH" mark on the cassette compartment. The cassette compartment automatically goes down.

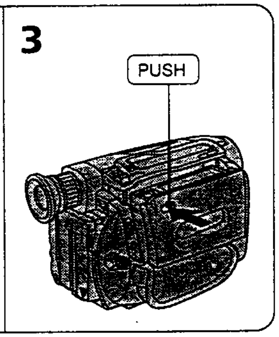
Inserción de un videocassette

Asegúrese de que haya una fuente de alimentación conectada a la videocámara. Para grabar en el sistema Hi8, utilice un videocassette **Hi8**. (CCD-TRV81 solamente).

(1) Manteniendo presionado el pequeño botón azul del mando EJECT, deslícelo en el sentido de la flecha. El compartimiento del videocassette se elevará y abrirá automáticamente.
(2) Inserte un videocassette con la ventanilla hacia afuera.
(3) Cierre el compartimiento del videocassette presionando la marca "PUSH" del mismo. El compartimiento del videocassette descenderá automáticamente.







To eject the cassette

While pressing the small blue button on the EJECT switch, slide it in the direction of the arrow.

To prevent accidental erasure

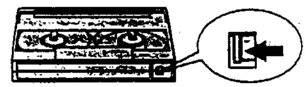
Slide the tab on the cassette to expose the red mark. If you insert the cassette with the red mark exposed and close the cassette compartment, the beeps sound for a while. If you try to record with the red mark exposed, the 📼 and ⏏ indicators flash in the viewfinder or on the LCD screen, and you cannot record.
To re-record on this tape, slide the tab back out covering the red mark.

Para expulsar el videocassette

Manteniendo presionado el pequeño botón azul del mando EJECT, deslícelo en el sentido de la flecha.

Para prevenir el borrado accidental

Delice la lengüeta del videocassette de forma que la marca roja quede al descubierto. Si inserta un videocassette con la marca roja al descubierto y cierra el compartimiento, sonará un pitido durante cierto tiempo. Si intenta grabar con la marca roja al descubierto, en el visor o en la pantalla de cristal líquido parpadearán los indicadores 📼 y ⏏, y no podrá grabar.
Para volver a grabar en esta cinta, deslice la lengüeta para cubrir la marca roja.



Camera recording

Make sure that the power source is installed and a cassette is inserted and that the START/STOP MODE switch inside the LCD panel is set to ♮.
Before you record one-time events, you may want to make a trial recording to make sure that the camcorder is working correctly.
When you use the camcorder for the first time, power on it and reset the date and time to your time before you start recording (p. 80). The date is automatically recorded for 10 seconds after you start recording **(AUTO DATE feature)** (CCD-TRV31/TRV41/TRV51 only). This feature works only once a day.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.
(2) Turn STANDBY up.
(3) Press START/STOP. The camcorder starts recording. The "REC" indicator appears and the red lamp lights up in the viewfinder. The camera recording/battery lamp located on the front of the camcorder also lights up.

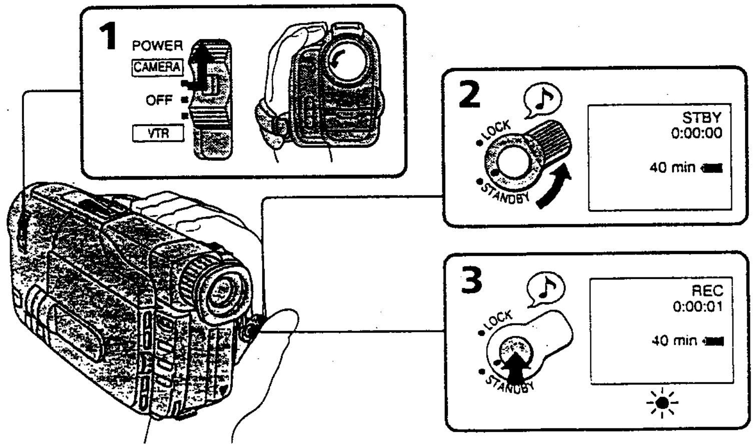
You can also select Recording mode, SP (standard play) mode or LP (long play) mode. Set REC MODE (p. 35) according to the length of your planned recording before you start.

Videofilmación

Asegúrese de que la fuente de alimentación esté instalada y haya un videocassette insertado, y de que el selector START/STOP MODE del interior de la pantalla de cristal líquido esté ajustado a ♮.
Antes de realizar videofimaciones irrepetibles, quizá desee realizar una grabación de prueba para comprobar si la videocámara funciona correctamente.
Cuando vaya a utilizar la videocámara por primera vez, ajuste la fecha y la hora antes de comenzar a videofilmar (pág. 80). La fecha se grabará automáticamente durante 10 segundos después de haber iniciado la videofilmación **[función de fechado automático (AUTO DATE)]** (CCD-TRV31/TRV41/TRV51 solamente). Esta función solamente trabajará una vez al día.

(1) Presionando el pequeño botón verde del selector POWER, póngalo en CAMERA.
(2) Gire STANDBY hacia arriba.
(3) Presione START/STOP. La videocámara comenzará a grabar. En el visor aparecerá el indicador "REC" y se encenderá la lámpara roja. La lámpara de videofilmación/estado de la bateria ubicada en la parte frontal de la videocámara se también encenderá.

Usted también podrá seleccionar el modo de grabación SP (reproducción estandar) o el modo LP (modo de reproducción larga). Antes de videofilmar, ajuste REC MODE (pág. 35) de acuerdo con la duración planeada.



To stop recording momentarily [a]

Press START/STOP again. The "STBY" indicator appears in the viewfinder **(Standby mode).**

To finish recording [b]

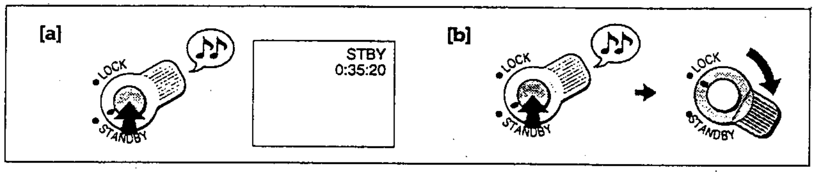
Press START/STOP again. Turn STANDBY down and set the POWER switch to OFF. Then, eject the cassette and remove the battery pack.

Para detener momentáneamente la grabación [a]

Vuelva a presionar START/STOP. En el visor aparecerá el indicador "STBY" **(modo de espera).**

Para finalizar la grabación [b]

Vuelva a presionar START/STOP. Gire STANDBY hacia abajo y ponga el selector POWER en OFF. Después, expulse el videocassette y retire la batería.

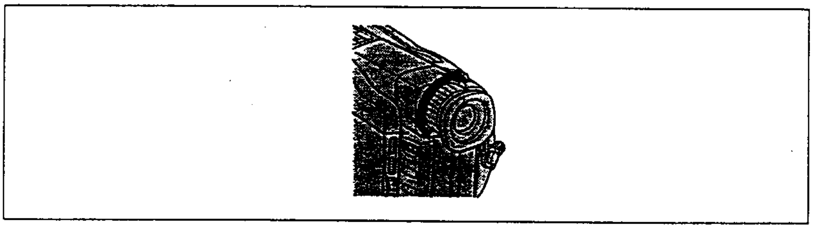


To focus the viewfinder lens

If you cannot see the indicators in the viewfinder clearly, or after someone else has used the camcorder, focus the viewfinder lens. Turn the viewfinder lens adjustment ring so that the indicators in the viewfinder come into sharp focus.

Para enfocar la lente del visor

Si no puede ver claramente los indicadores del visor, o cuando emplee la videocámara después de que otra persona la haya utilizado, enfoque la lente del visor. Gire el anillo de ajuste de la lente del visor de forma que los indicadores del visor queden nítidamente enfocados.



Note on Standby mode

If you leave the camcorder in Standby mode for 5 minutes while the cassette is inserted, the camcorder turns off automatically. This prevents wearing down the battery and wearing out the tape. To resume Standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

Notes on recording mode

- This camcorder records and plays back in SP (standard play) mode and in LP (long play) mode. The playback quality in LP mode, however, will not be as good as that in SP mode.
- When a tape recorded on this camcorder in LP mode is played back on other types of 8 mm camcorders or VCRs, the playback quality may not be as good as that on this camcorder.
- If you select LP mode, then even if you are using a Hi8 tape, the camcorder records in the standard 8 mm system. In this case, the Hi8 indicator flashes in the viewfinder or on the LCD screen.

Note on recording

When you record from the beginning of a tape, run the tape for about 15 seconds before starting the actual recording. This will ensure that you won't miss any start-up scenes when you play back the tape.

Notes on the tape counter

- The tape counter indicates the recording or playback time. Use it as a guide. There will be a time lag of several seconds from the actual time. To set the counter to zero, press COUNTER RESET.
- If the tape is recorded in SP and LP modes mixed, the tape counter shows incorrect recording time. When you intend to edit the tape using the tape counter, record in same (SP or LP) mode.

Note on the beep sound

As indicated with ♪ in the illustration, a beep sounds when you turn the power on or when you start recording, and two beeps sound when you stop recording, confirming the operation. Several beeps also sound as a warning of any unusual condition of the camcorder.
Note that the beep sound is not recorded on the tape. If you do not want to hear the beep sound, select "OFF" in the menu system.

Nota sobre el modo de espera

Si deja la videocámara en el modo de espera durante 5 minutos con el videocassette insertado, la alimentación de la videocámara se desconectará automáticamente. Esto evita que la batería se descargue y el videocassette se desgaste. Para reanudar el modo de espera, gire una vez STANDBY hacia abajo y después vuelva a girarlo hacia arriba. Para comenzar a videofilmar, presione START/STOP.

Notas sobre el modo de grabación

- Esta videocámara graba y reproduce en los modos SP (reproducción estándar) y LP (reproducción larga). Sin embargo, la calidad de las imágenes grabadas en el modo LP no será tan buena como la del modo SP.
- Cuando reproduzca una cinta grabada con esta videocámara en el modo LP en otros tipos de videocámaras o videograbadoras de 8 mm, es posible que la calidad de la reproducción no sea tan buena como con esta videocámara.
- Si ha seleccionado el modo LP, aunque utilice una cinta Hi8, la videocámara grabará señales de cinta de 8 mm estándar. En este caso, el indicador Hi8 parpadeará en el visor o en la pantalla de cristal líquido.

Nota sobre la grabación

Cuando grabe desde el principio de la cinta, haga que ésta avance unos 15 segundos antes de comenzar a videofilmar. Esto evitará que se pierdan las escenas iniciales cuando reproduzca la cinta.

Notas sobre el contador de la cinta

- El contador de la cinta indica el tiempo de grabación o reproducción. Utilícelo como guía. Habrá un retardo de varios segundos con relación al tiempo real. Para poner el contador a cero, presione COUNTER RESET.
- Si graba una cinta en los modos SP y LP mezclados, el contador de la cinta mostrará un tiempo de grabación incorrecto. Cuando tenga planeado editar la cinta utilizando el contador de la misma, grabe en el mismo modo (SP o LP).

Nota sobre los pitidos

Como se indica mediante la marca ♪ en las ilustraciones, cuando conecte la alimentación o comience a videofilmar sonará un pitido, y cuando detenga la grabación sonarán dos pitidos, confirmando así la operación. También sonarán varios pitidos como aviso de que se ha producido alguna condición extraña en la videocámara.
Tenga en cuenta que los pitidos no se grabarán en la cinta. Si no desea escuchar los pitidos, seleccione "OFF" en el sistema de menús.

Note on the AUTO DATE feature – CCD-TRV31/TRV41/TRV51 only

The clock is set at the factory to Tokyo time for the models sold in Japan, and to New York or Panama time for other models. You can reset the clock in the menu system. You can change the AUTO DATE settings by selecting ON or OFF in the menu system. The AUTO DATE feature shows the date automatically once a day. However, the date may automatically appear more than once a day when:
- you reset the date and time.
- you eject and insert the tape again.
- you stop recording within 10 seconds.
- you set AUTO DATE to OFF once and set it to ON again in the menu system.

When moving from indoors to outdoors (or vice versa)

Turn STANDBY up and point the camcorder at a white object for about 15 seconds so that the white balance is properly adjusted.

Nota sobre la función de fechado automático (AUTO DATE) – CCD-TRV31/TRV41/TRV51 solamente

El reloj está ajustado de fábrica a la hora de Tokio para los modelos comercializados en Japón y a la hora de Nueva York o Panamá para otros modelos. Usted podrá reajustar el reloj con el sistema de menús. Usted podrá cambiar los ajustes de AUTO DATE seleccionando ON u OFF en el sistema de menús. La función de fechado automático mostrará automáticamente la fecha una vez al día.
Sin embargo, la fecha puede aparecer automáticamente más de una vez al día cuando:
- reajuste la fecha y la hora.
- extraiga el videocassette y vuelva a insertarlo.
- pare la videofilmación antes de 10 segundos.
- ajuste AUTO DATE a OFF y después de nuevo a ON en el sistema de menús.

Cuando se traslade de interiores a exteriores (o viceversa)

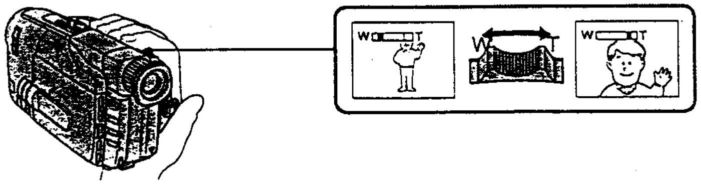
Gire STANDBY hacia arriba y dirija la videocámara hacia un objeto blanco durante unos 15 segundos para que se ajuste correctamente el equilibrio del blanco.

Using the zoom feature

Zooming is a recording technique that lets you change the size of the subject in the scene.
For more professional-looking recordings, use the zoom function sparingly.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)

Utilización del zoom

El zoom es una técnica de videofilmación que le permite cambiar el tamaño del motivo en la escena.
Para que sus grabaciones tengan una apariencia más profesional, no utilice el zoom en exceso.
Lado "T": para telefoto (el motivo aparece más próximo)
Lado "W": para gran angular (el motivo aparece más alejado)



Zooming speed (Variable speed zooming)

Move the power zoom lever a little for a slower zoom, move it further for a faster zoom.

When you shoot a subject using a telephoto zoom

If you cannot get a sharp focus while in extreme telephoto zoom, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 80 cm away from the lens surface in the telephoto position, or about 1 cm away in the wide-angle position.

Notes on digital zoom – CCD-TRV41/TRV51/TRV81 only

- More than 15x zoom is performed digitally, and the picture quality deteriorates as you go toward the "T" side. If you do not want to use the digital zoom, set the D ZOOM function to OFF in the menu system.
- The right side **[a]** of the power zoom indicator shows the digital zooming zone, and the left side **[b]** shows the optical zooming zone. If you set the D ZOOM function to OFF, the **[a]** zone disappears.

Velocidad del zoom (Zoom a velocidad variable)

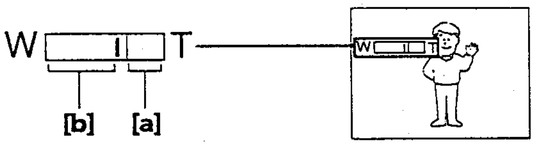
Mueva un poco la palanca del zoom motorizado para efectuar un zoom lento, y muévala más para un zoom más rápido.

Cuando videofilme un motivo utilizando el acercamiento con el zoom

Si no puede enfocar nítidamente utilizando el ajuste del zoom en el extremo de telefoto, mueva la palanca del zoom hasta el lado motorizado hasta que el motivo se enfoque nítidamente. En la posición de telefoto, podrá videofilmar un motivo que se encuentre a un mínimo de 80 cm de la superficie del objetivo, y a 1 cm aproximadamente en la posición de gran angular.

Notas sobre el zoom digital – CCD-TRV41/TRV51/TRV81 solamente

- El zoom de más de 15x se realizará digitalmente, y la calidad de la imagen se deteriorará al avanzar hacia el lado "T". Si no desea utilizar el zoom digital, ajuste la función D ZOOM a OFF en el sistema de menús.
- La parte derecha **[a]** del indicador del zoom motorizado muestra la zona de zoom digital, y la izquierda **[b]** muestra la zona del zoom óptico. Si ajusta la función D ZOOM a OFF, la zona **[a]** desaparecerá.



Shooting with the LCD screen

You can also record the picture while looking at the LCD screen.
When using the LCD screen, the viewfinder turns off automatically. You cannot monitor the sound from the speaker during recording.

(1) While pressing OPEN, open the LCD panel.

(2) Adjust the angle of the LCD panel.
The LCD panel moves about 90 degrees to this side and about 210 degrees to the other side.
To adjust the brightness of the LCD screen, press LCD BRIGHT.
+ side: to brighten the LCD screen
– side: to dim the LCD screen

The battery life is longer when the LCD panel is closed. Use the viewfinder instead of the LCD screen to save the battery power.

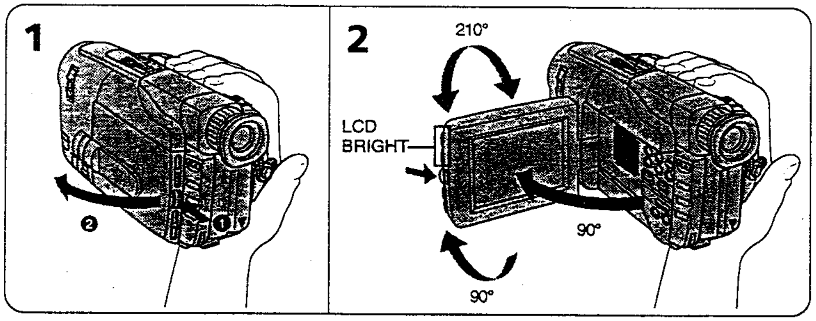
Videofilmación con la pantalla de cristal líquido

Usted también podrá videofilmar observando la imagen en la pantalla de cristal líquido.
Cuando utilice la pantalla de cristal líquido, el visor se apagará automáticamente. El sonido no podrá oírse a través del altavoz durante la videofilmación.

(1) Manteniendo presionado OPEN, abra la pantalla de cristal líquido.

(2) Ajuste el ángulo de la pantalla de cristal líquido.
La pantalla de cristal líquido puede moverse unos 90 grados hacia este lado y unos 210 grados hacia el otro.
Para ajustar el brillo de la pantalla de cristal líquido, presione LCD BRIGHT.
Lado +: para aumentar el brillo de la pantalla
Lado –: para reducir el brillo de la pantalla

La duración de la batería se prolongará si utiliza la videocámara con la pantalla de cristal líquido cerrada. Utilice el visor en lugar de la pantalla de cristal líquido para ahorrar energía de la batería.

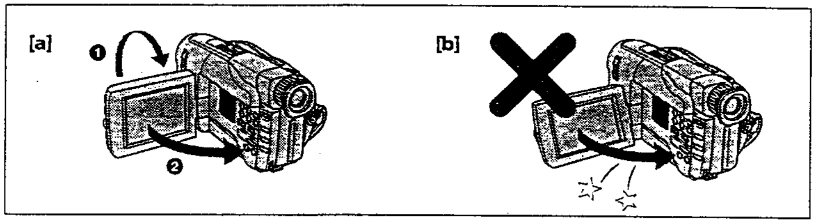


To let the subject monitor the shot
Turn the LCD panel over (p. 38).

Para permitir que el sujeto observe la videofilmación
Dé la vuelta a la pantalla de cristal líquido (pág. 38).

Notes on the LCD panel
- When closing the LCD panel, turn it vertically until it clicks **[a]**.
- When turning the LCD panel, turn it always vertically; otherwise, the camcorder body may be damaged or the LCD panel may not close properly **[b]**.
- Close the LCD panel completely when not in use.

Notas sobre la pantalla de cristal líquido
- Para cerrar la pantalla de cristal líquido, gírela verticalmente hasta que chasquee **[a]**.
- Cuando gire la pantalla de cristal líquido, hágalo siempre verticalmente, ya que de lo contrario podría dañar el cuerpo de la videocámara o la pantalla no se cerraría adecuadamente **[b]**.
- Cuando no vaya a utilizar la pantalla de cristal líquido, ciérrela completamente.

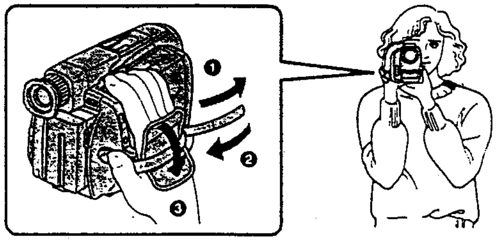


Hints for better shooting

For hand-held shots, you'll get better results by holding the camcorder according to the following suggestions:
- Hold the camcorder firmly and secure it with the grip strap so that you can easily manipulate the controls with your thumb.

Sugerencias para videofilmar mejor

Cuando videofilme con la videocámara en las manos, obtendrá mejores resultados sujetándola según las siguientes sugerencias:
- Sujete firmemente la videocámara y asegúrela con la correa de la empuñadura de modo que pueda manipular fácilmente los controles con el pulgar.

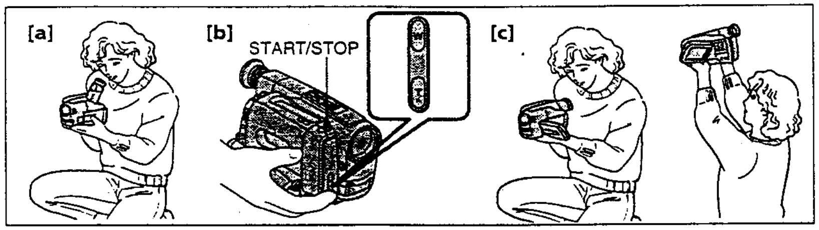


Hints for better shooting

Sugerencias para videofilmar mejor

- Place your right elbow against your side.
- Place your left hand under the camcorder to support it. Be sure to not touch the built-in microphone.
- Place your eye firmly against the viewfinder eyecup.
- Use the viewfinder frame as a guide to determine the horizontal plane.
- You can also record in a low position to get an interesting angle. Lift the viewfinder up for recording from a low position **[a]**.
- While recording in a low position, you can use the START/STOP button on the top of the camcorder or the power zoom button located on the front **[b]**. Note that you cannot change the zooming speed using the front power zoom button.
- You can also record in a low position or even in a high position using the LCD panel **[c]**.
- When you use the LCD screen outdoors in direct sunlight, the LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

- Ponga su codo derecho contra su costado.
- Ponga su mano izquierda debajo de la videocámara para sostenerla. Cerciórese de no tocar el micrófono incorporado.
- Apoye el ocular del visor firmemente contra su ojo.
- Para determinar el plano horizontal, utilice el cuadro del visor como guía.
- Podrá grabar desde una posición baja para obtener un ángulo de videofilmación interesante. Levante el visor para grabar desde una posición baja **[a]**.
- Cuando grabe desde una posición baja, podrá utilizar la tecla START/STOP ubicada en la parte superior de la videocámara o la tecla del zoom motorizado de la parte frontal **[b]**. Tenga en consideración que la velocidad del zoom no podrá cambiarse con la tecla frontal del zoom motorizado.
- Usted también podrá grabar desde una posición baja o incluso desde una posición alta utilizando la pantalla de cristal líquido **[c]**.
- Cuando utilice la pantalla de cristal líquido en exteriores a la luz solar directa, la pantalla de cristal líquido puede resultar difícil de ver. Cuando suceda esto, le recomendamos que utilice el visor.



Place the camcorder on a flat surface or use a tripod
Try placing the camcorder on a table top or any other flat surface of suitable height. If you have a tripod for a still camera, you can also use it with the camcorder.
When attaching a non-Sony tripod, make sure that the length of the tripod screw is less than 6.5 mm. Otherwise, the screw may damage the inner parts of the camcorder.

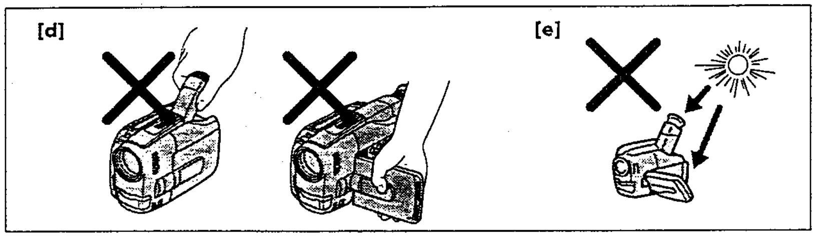
Coloque la videocámara sobre una superficie plana o utilice un trípode
Pruebe colocando la videocámara sobre una mesa o cualquier otra superficie plana que tenga una altura apropiada. Si posee un trípode para cámara fotográfica, podrá utilizarlo también con esta videocámara. Cuando utilice un trípode que no sea de Sony, asegúrese de que la longitud del tornillo del trípode sea inferior a 6,5 mm. De lo contrario, el tornillo podría dañar las partes interiores de la videocámara.

Hints for better shooting

Sugerencias para videofilmar mejor

Cautions on the viewfinder and the LCD
- Do not pick up the camcorder by the viewfinder or by the LCD panel **[d]**.
- Do not place the camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder may be damaged. Be careful when placing the camcorder under sunlight or by a window **[e]**.

Precauciones con el visor y la pantalla de cristal líquido
- No sujete la videocámara por el visor ni por la pantalla de cristal líquido **[d]**.
- No coloque la videocámara de forma que el visor o la pantalla de cristal líquido quede hacia el sol. El interior del visor o de la pantalla de cristal líquido podría deformarse. Tenga cuidado cuando deje la videocámara bajo el sol o cerca de una ventana **[e]**.

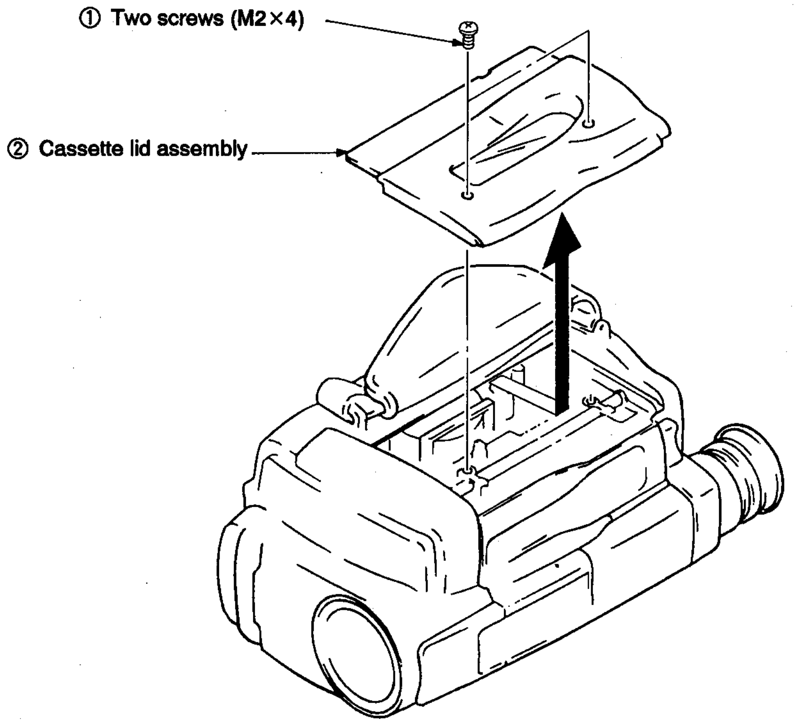


Note on the LCD screen
The LCD screen is made with high-precision technology. However, black points or bright points of light (red, blue, or green) may appear on the LCD screen. These points are not recorded on the tape. This is not a malfunction. (Effective dots: more than 99.99%).

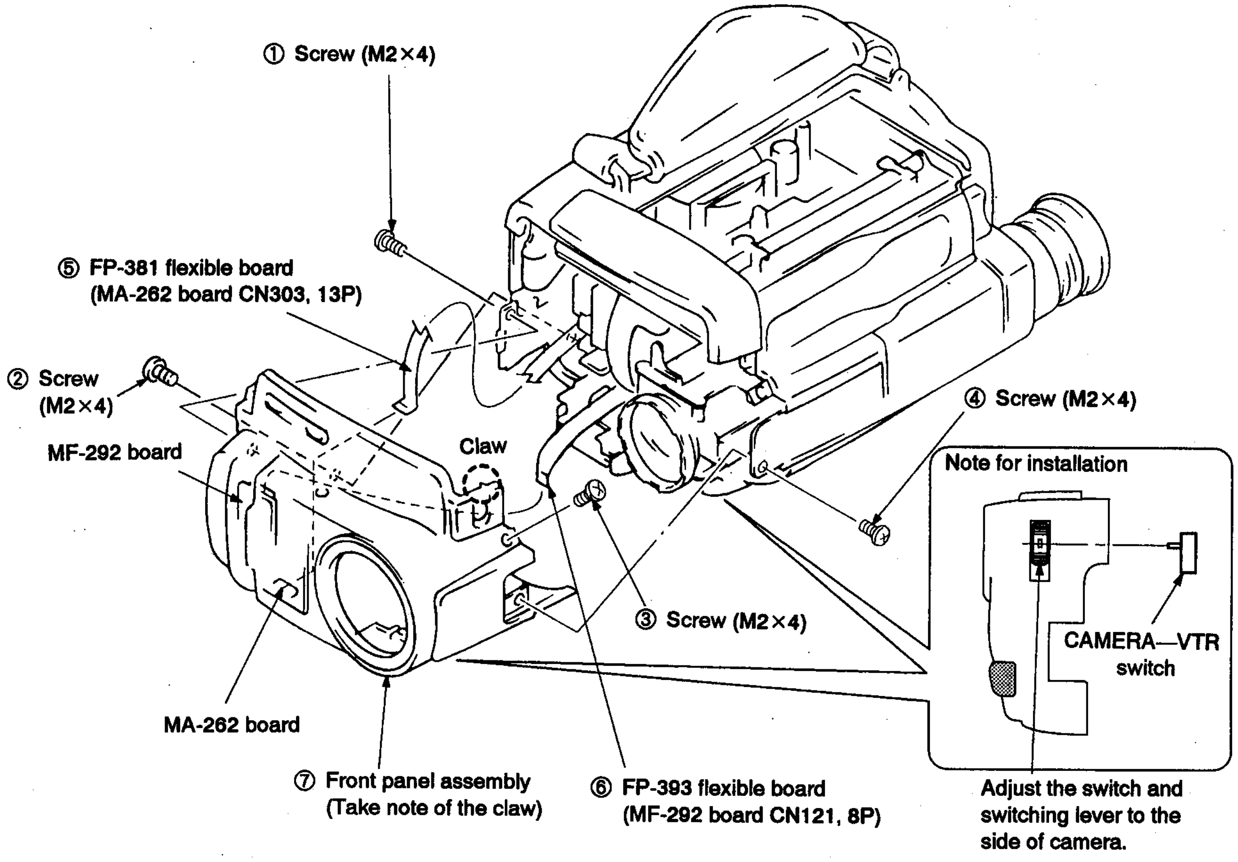
Nota sobre la pantalla de cristal líquido
La pantalla de cristal líquido ha sido fabricada con tecnología de gran precisión. Sin embargo, es posible que en la misma aparezcan puntos negros o brillantes de luz (rojos, azules, o verdes). Estos puntos no se grabarán en la cinta. Esto no significa mal funcionamiento.
(Puntos efectivos: más del 99,99%)

SECTION 2
DISASSEMBLY

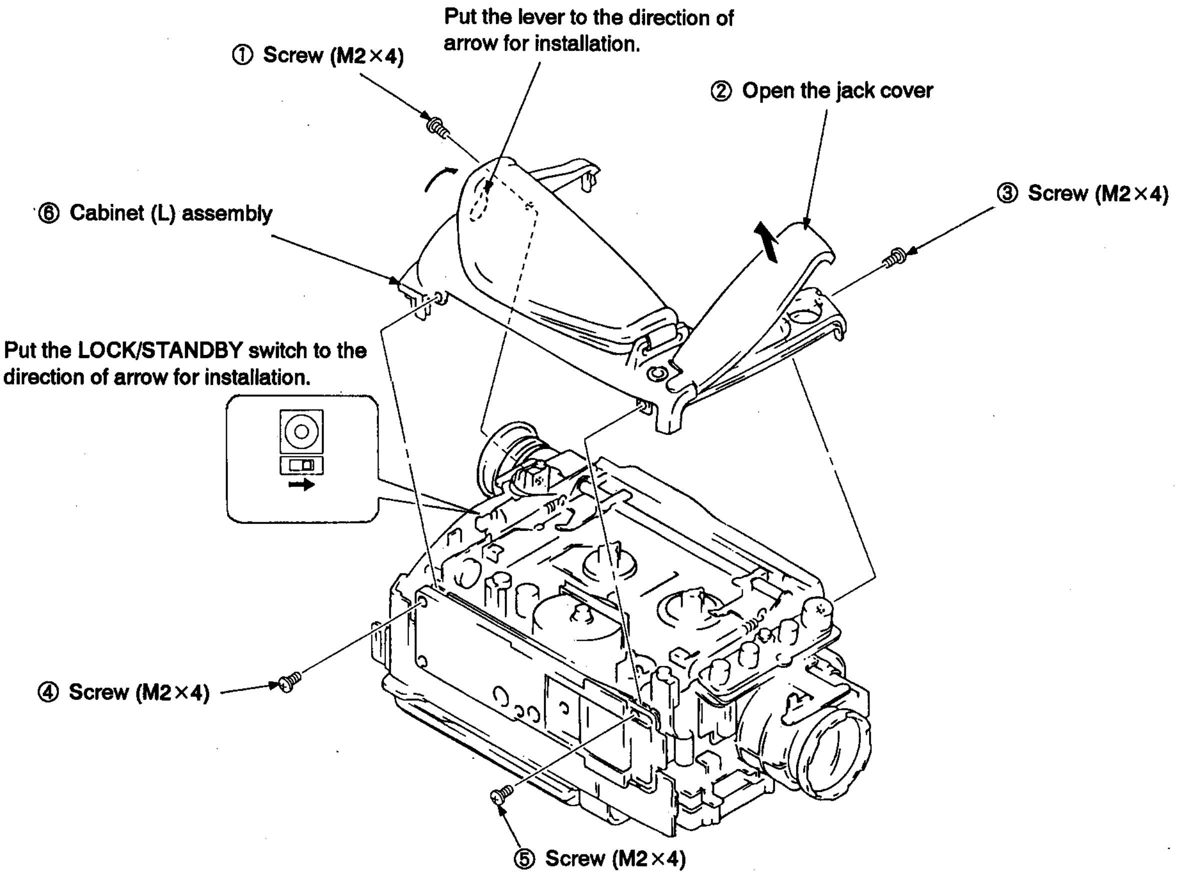
2-1. REMOVAL OF CASSETTE LID ASSEMBLY


① Two screws (M2×4)
② Cassette lid assembly

2-2. REMOVAL OF FRONT PANEL ASSEMBLY


① Screw (M2×4)
⑤ FP-381 flexible board (MA-262 board CN303, 13P)
② Screw (M2×4)
MF-292 board
Claw
④ Screw (M2×4)
Note for installation
③ Screw (M2×4)
CAMERA—VTR switch
MA-262 board
⑦ Front panel assembly (Take note of the claw)
⑥ FP-393 flexible board (MF-292 board CN121, 8P)
Adjust the switch and switching lever to the side of camera.

2-3. REMOVAL OF CABINET (L) ASSEMBLY


① Screw (M2×4)
Put the lever to the direction of arrow for installation.
② Open the jack cover
③ Screw (M2×4)
⑥ Cabinet (L) assembly
Put the LOCK/STANDBY switch to the direction of arrow for installation.
④ Screw (M2×4)
⑤ Screw (M2×4)

2-4. REMOVAL OF CABINET (R) ASSEMBLY

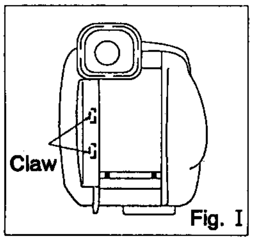
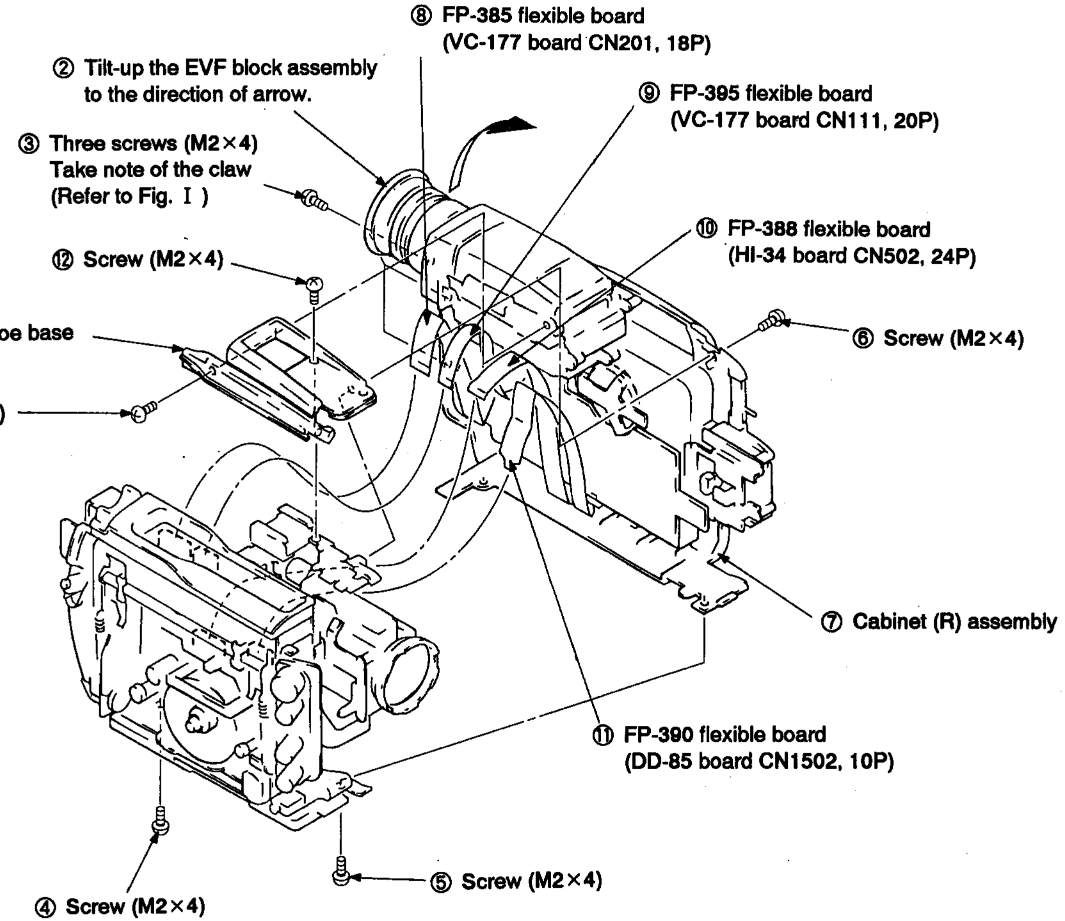
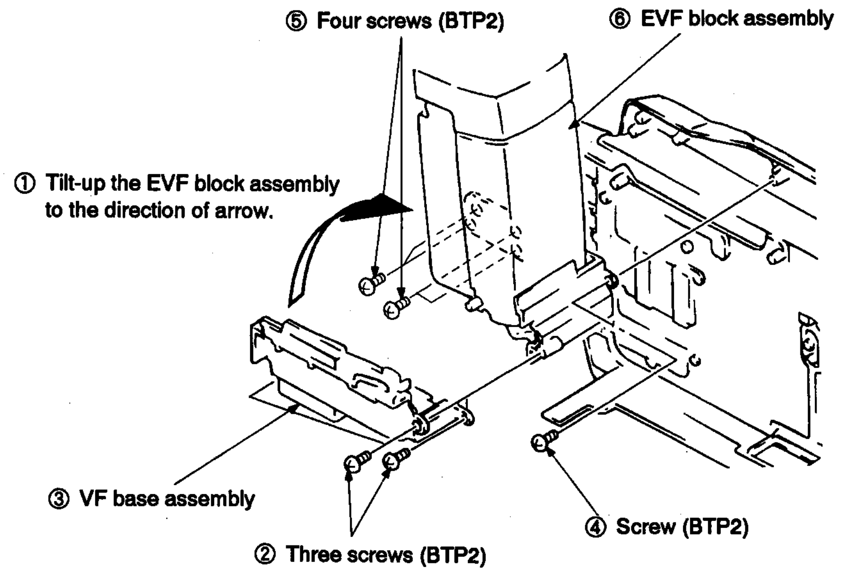


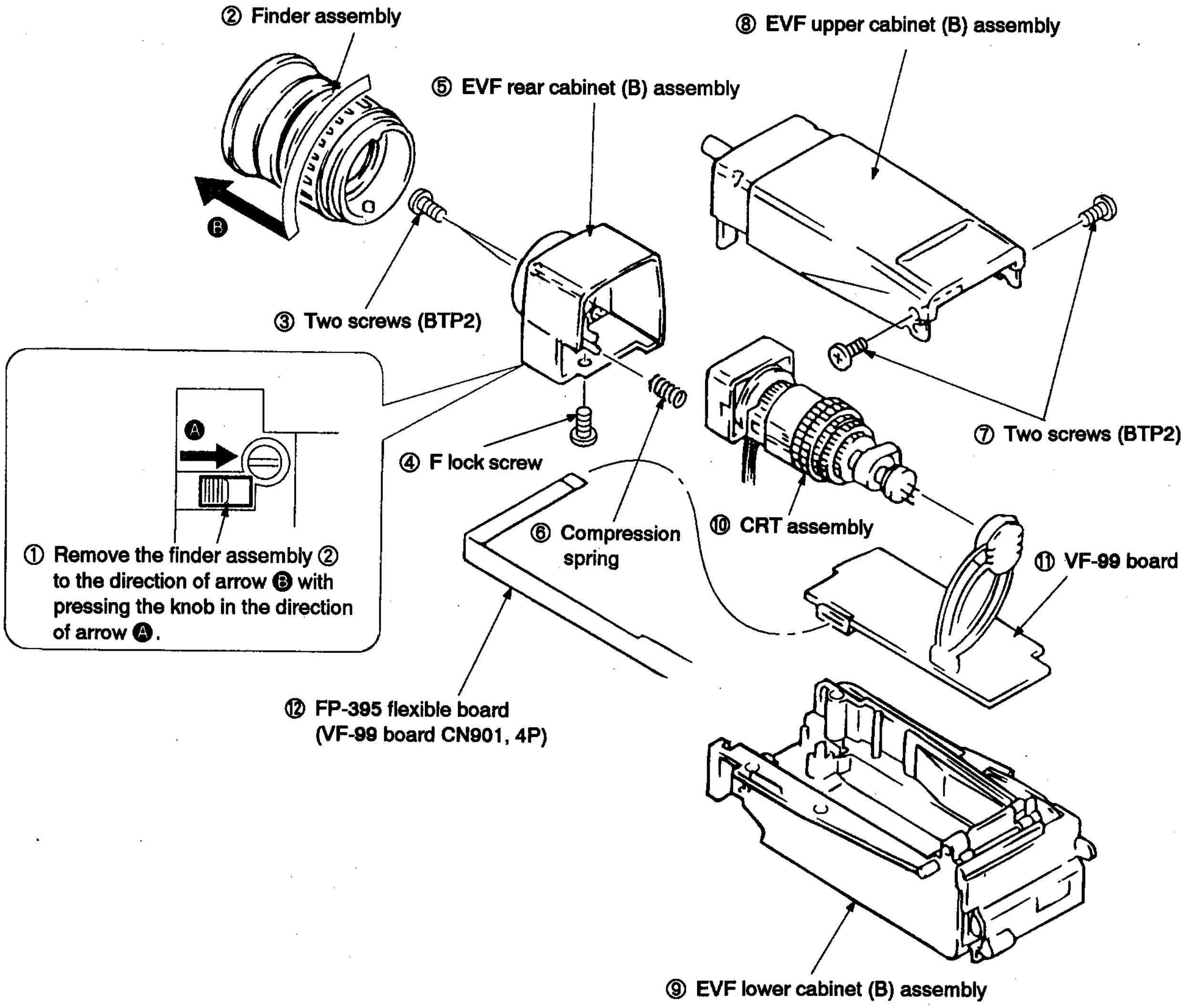
Fig. I


⑧ FP-385 flexible board (VC-177 board CN201, 18P)
② Tilt-up the EVF block assembly to the direction of arrow.
⑨ FP-395 flexible board (VC-177 board CN111, 20P)
③ Three screws (M2×4) Take note of the claw (Refer to Fig. I)
⑩ FP-388 flexible board (HI-34 board CN502, 24P)
⑫ Screw (M2×4)
⑥ Screw (M2×4)
⑬ Shoe base
① Screw (M2×4)
⑦ Cabinet (R) assembly
⑪ FP-390 flexible board (DD-85 board CN1502, 10P)
④ Screw (M2×4)
⑤ Screw (M2×4)

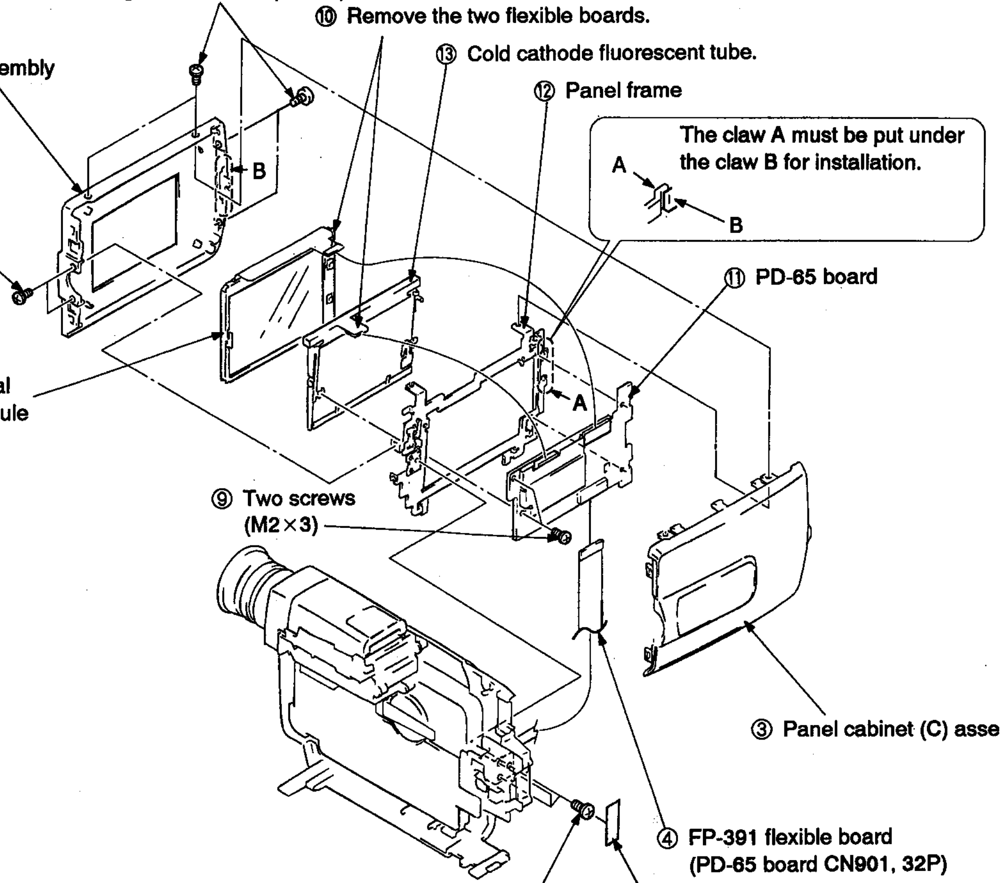
2-5. REMOVAL OF EVF BLOCK ASSEMBLY


⑤ Four screws (BTP2)
⑥ EVF block assembly
① Tilt-up the EVF block assembly to the direction of arrow.
③ VF base assembly
④ Screw (BTP2)
② Three screws (BTP2)

2-6. REMOVAL OF EVF BLOCK


② Finder assembly
⑧ EVF upper cabinet (B) assembly
⑤ EVF rear cabinet (B) assembly
B
③ Two screws (BTP2)
A
⑦ Two screws (BTP2)
④ F lock screw
① Remove the finder assembly ② to the direction of arrow B with pressing the knob in the direction of arrow A.
⑥ Compression spring
⑩ CRT assembly
⑪ VF-99 board
⑫ FP-395 flexible board (VF-99 board CN901, 4P)
⑨ EVF lower cabinet (B) assembly

2-7. REMOVAL OF LCD BLOCK (3" LCD) (TRV31/TRV41)



① Open the LCD panel.

② Four screws (M2×4)

⑩ Remove the two flexible boards.

⑬ Cold cathode fluorescent tube.

⑧ Panel cabinet (M) assembly

⑫ Panel frame

The claw A must be put under the claw B for installation.

⑦ Two screws (M2×4)

⑪ PD-65 board

⑭ Liquid crystal display module

⑨ Two screws (M2×3)

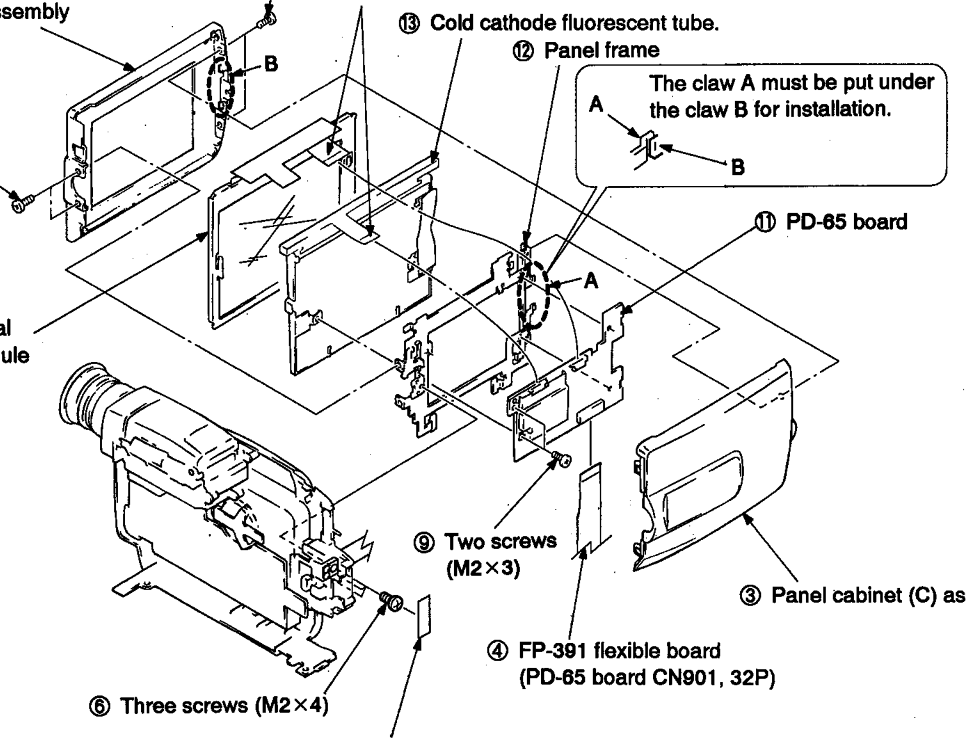
③ Panel cabinet (C) assembly

④ FP-391 flexible board (PD-65 board CN901, 32P)

⑥ Three screws (M2×4)

⑤ Tear off the adhesive tape.

2-8. REMOVAL OF LCD BLOCK (4" LCD) (TRV51/TRV81)



① Open the LCD panel.

② Two screws (M2×4)

⑩ Remove the two flexible boards.

⑧ Panel cabinet (M) assembly

⑬ Cold cathode fluorescent tube.

⑫ Panel frame

The claw A must be put under the claw B for installation.

⑦ Two screws (M2×4)

⑪ PD-65 board

⑭ Liquid crystal display module

⑨ Two screws (M2×3)

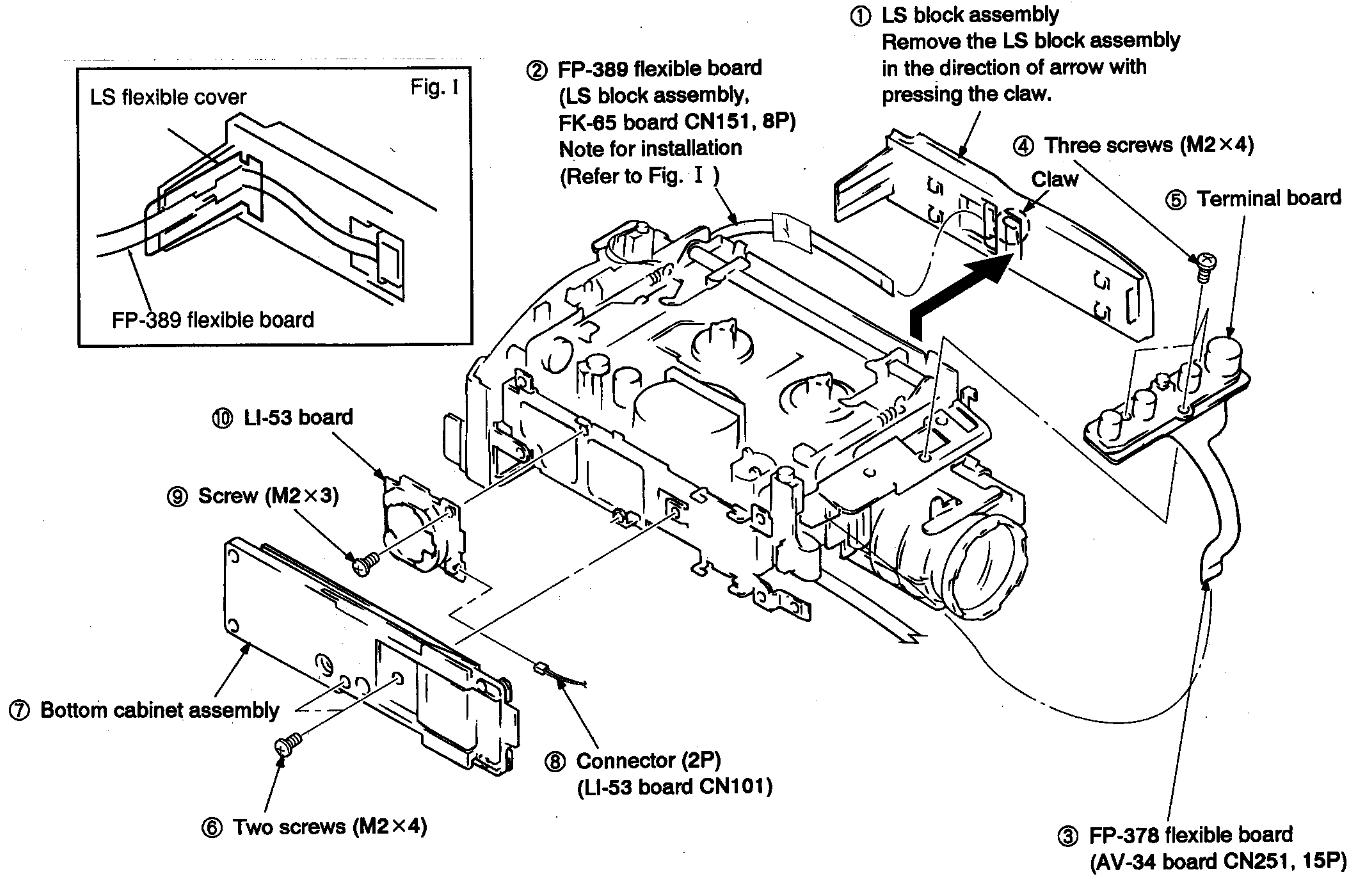
③ Panel cabinet (C) assembly

④ FP-391 flexible board (PD-65 board CN901, 32P)

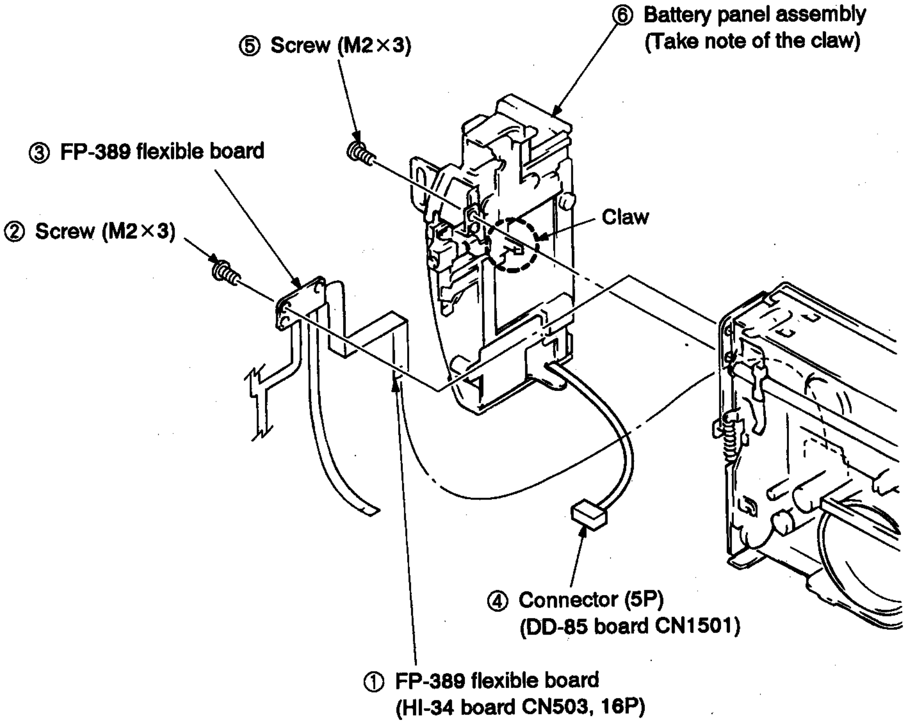
⑥ Three screws (M2×4)

⑤ Tear off the adhesive tape.

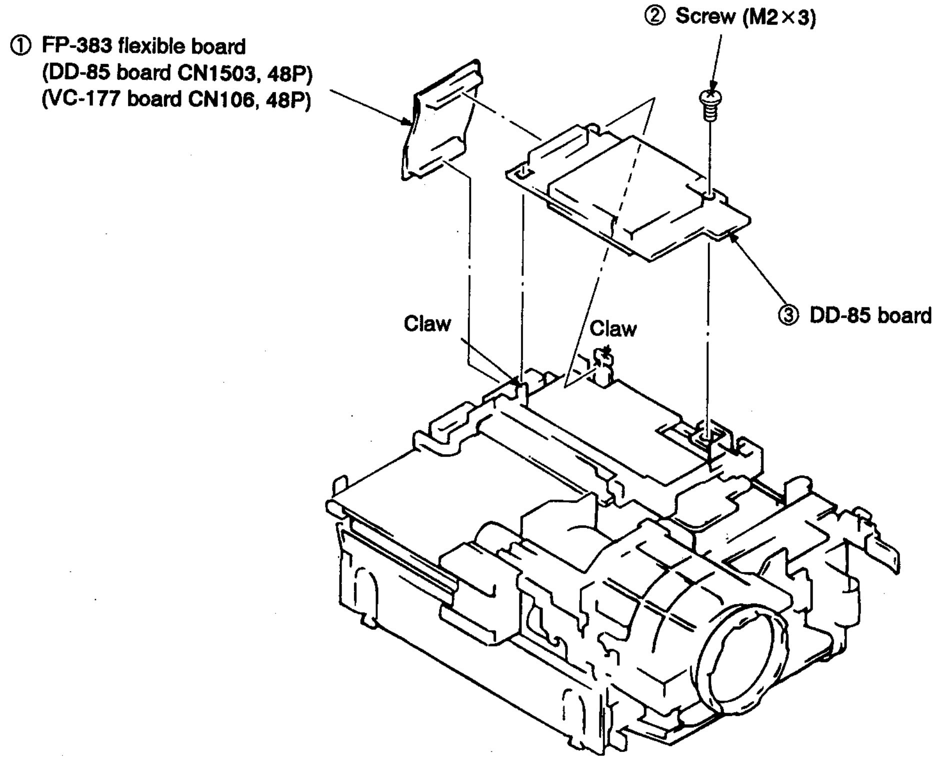
2-9. REMOVAL OF LS BLOCK ASSEMBLY


① LS block assembly
Remove the LS block assembly in the direction of arrow with pressing the claw.
② FP-389 flexible board
(LS block assembly, FK-65 board CN151, 8P)
Note for installation
(Refer to Fig. I)
LS flexible cover
Fig. I
FP-389 flexible board
④ Three screws (M2×4)
Claw
⑤ Terminal board
⑩ LI-53 board
⑨ Screw (M2×3)
⑦ Bottom cabinet assembly
⑧ Connector (2P)
(LI-53 board CN101)
⑥ Two screws (M2×4)
③ FP-378 flexible board
(AV-34 board CN251, 15P)

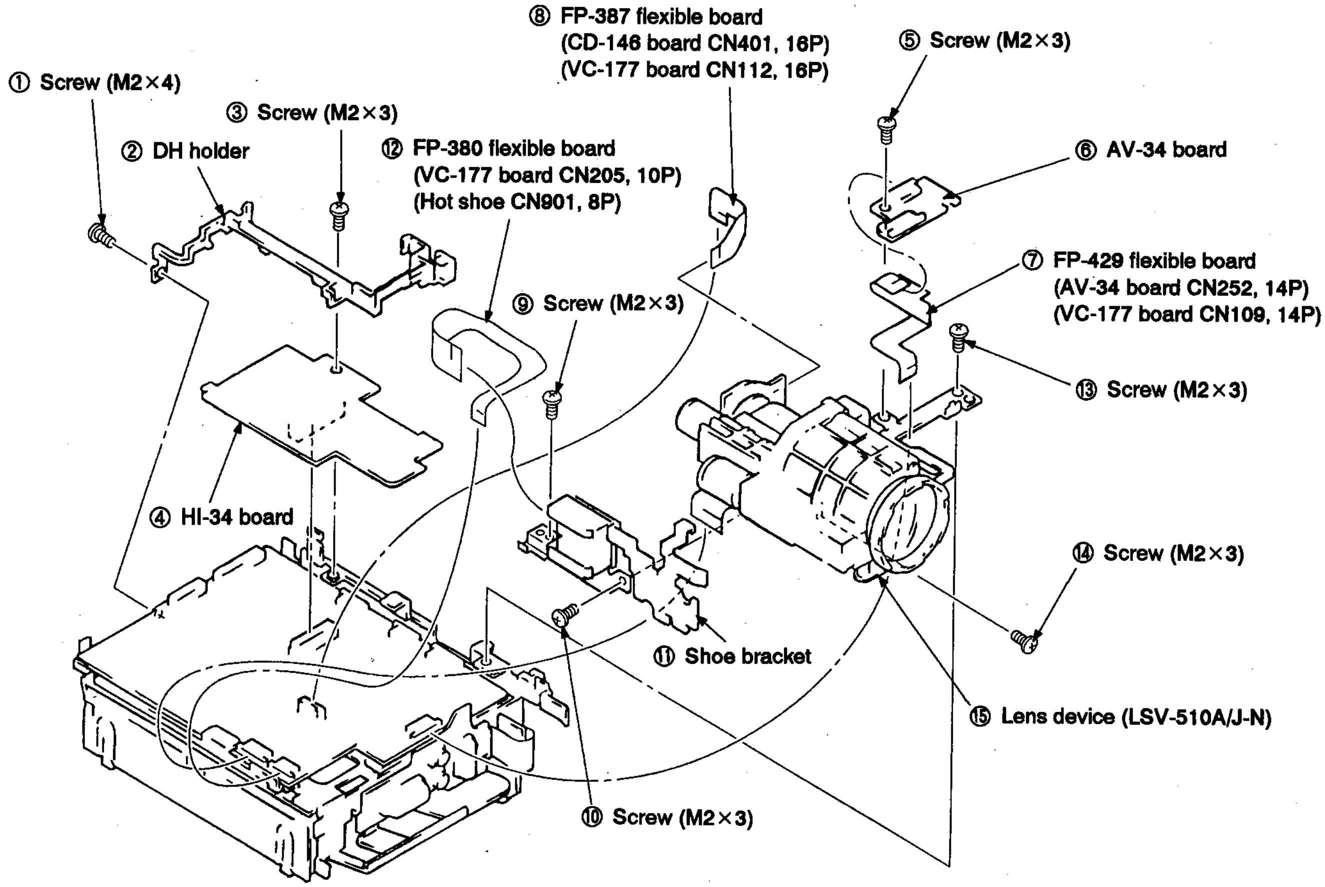
2-10. REMOVAL OF BATTERY PANEL ASSEMBLY


⑥ Battery panel assembly
(Take note of the claw)
⑤ Screw (M2×3)
③ FP-389 flexible board
② Screw (M2×3)
Claw
④ Connector (5P)
(DD-85 board CN1501)
① FP-389 flexible board
(HI-34 board CN503, 16P)

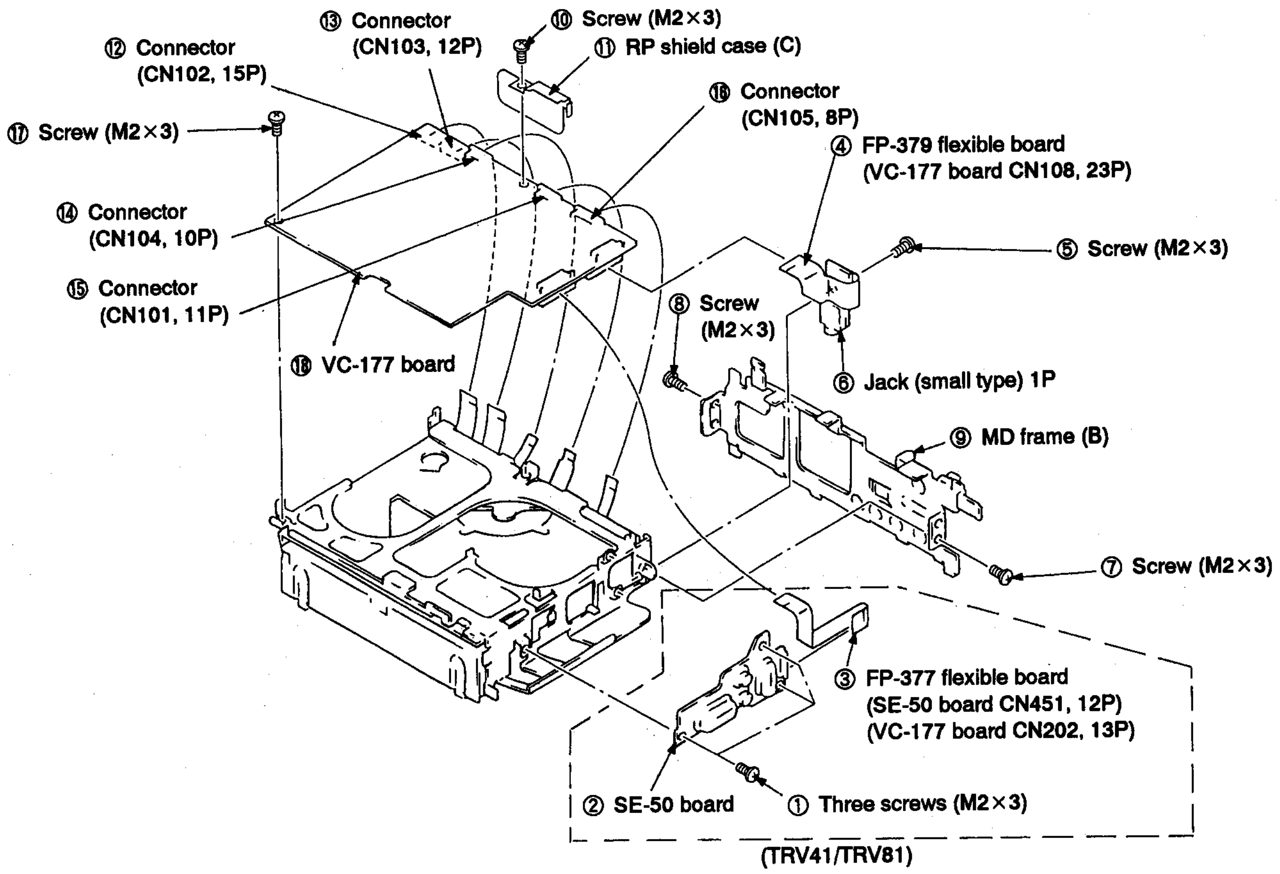
2-11. REMOVAL OF DD-85 BOARD


② Screw (M2×3)
① FP-383 flexible board
(DD-85 board CN1503, 48P)
(VC-177 board CN106, 48P)
③ DD-85 board
Claw
Claw

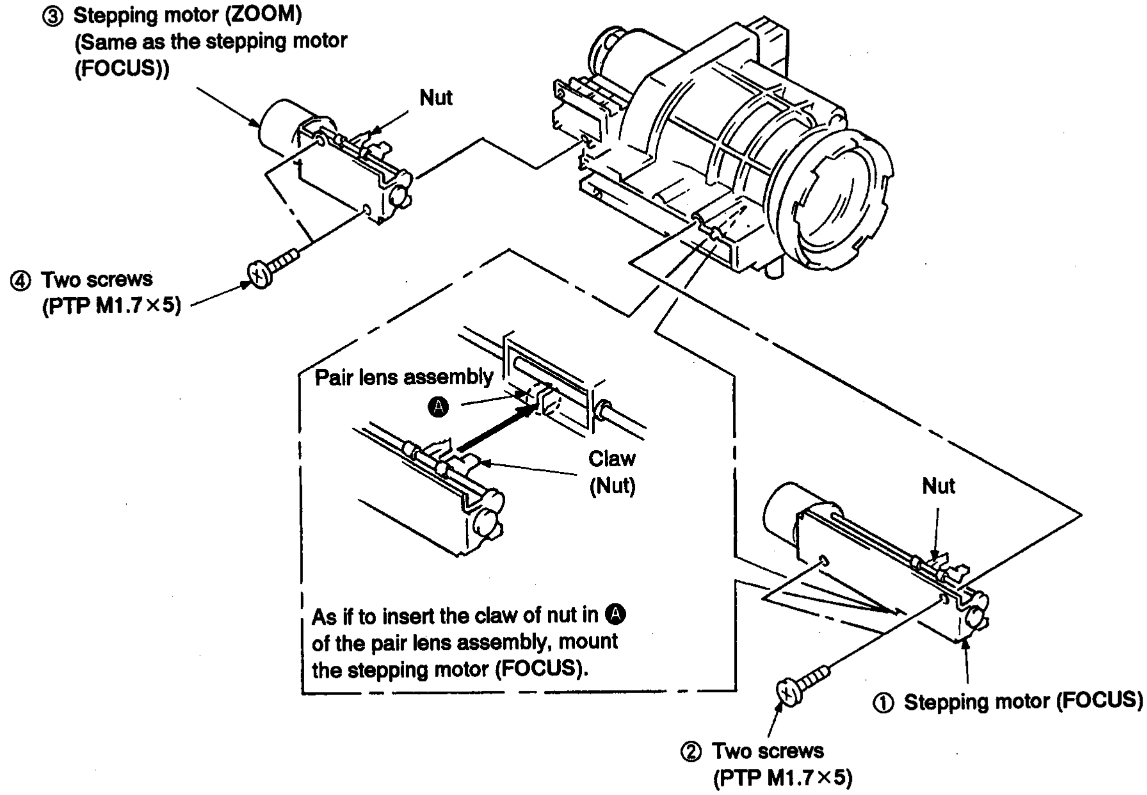
2-12. REMOVAL OF LENS DEVICE (LSV-510/J-N) AND HI-34 BOARD


⑧ FP-387 flexible board
(CD-146 board CN401, 16P)
(VC-177 board CN112, 16P)
⑤ Screw (M2×3)
① Screw (M2×4)
③ Screw (M2×3)
② DH holder
⑫ FP-380 flexible board
(VC-177 board CN205, 10P)
(Hot shoe CN901, 8P)
⑥ AV-34 board
⑦ FP-429 flexible board
(AV-34 board CN252, 14P)
(VC-177 board CN109, 14P)
⑨ Screw (M2×3)
⑬ Screw (M2×3)
④ HI-34 board
⑭ Screw (M2×3)
⑪ Shoe bracket
⑮ Lens device (LSV-510A/J-N)
⑩ Screw (M2×3)

2-13. REMOVAL OF VC-177 BOARD AND SE-50 BOARD


⑬ Connector (CN103, 12P)
⑩ Screw (M2×3)
⑫ Connector (CN102, 15P)
⑪ RP shield case (C)
⑯ Connector (CN105, 8P)
⑰ Screw (M2×3)
④ FP-379 flexible board (VC-177 board CN108, 23P)
⑭ Connector (CN104, 10P)
⑤ Screw (M2×3)
⑮ Connector (CN101, 11P)
⑧ Screw (M2×3)
⑱ VC-177 board
⑥ Jack (small type) 1P
⑨ MD frame (B)
⑦ Screw (M2×3)
③ FP-377 flexible board (SE-50 board CN451, 12P) (VC-177 board CN202, 13P)
② SE-50 board
① Three screws (M2×3)
(TRV41/TRV81)

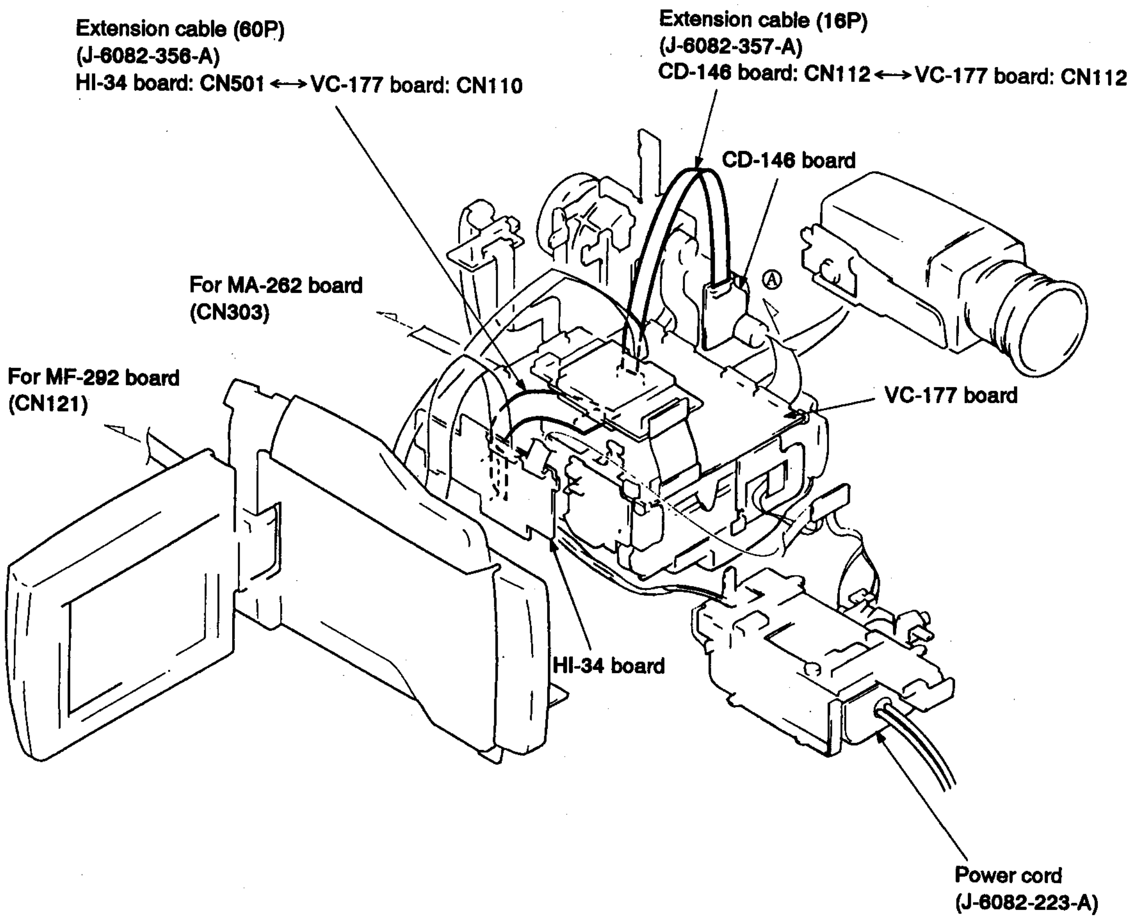
2-14. MOUNTING OF STEPPING MOTOR (FOCUS/ZOOM)


③ Stepping motor (ZOOM) (Same as the stepping motor (FOCUS))
Nut
④ Two screws (PTP M1.7×5)
Pair lens assembly
Ⓐ
Claw (Nut)
Nut
As if to insert the claw of nut in Ⓐ of the pair lens assembly, mount the stepping motor (FOCUS).
① Stepping motor (FOCUS)
② Two screws (PTP M1.7×5)

2-15. SERVICE POSITION

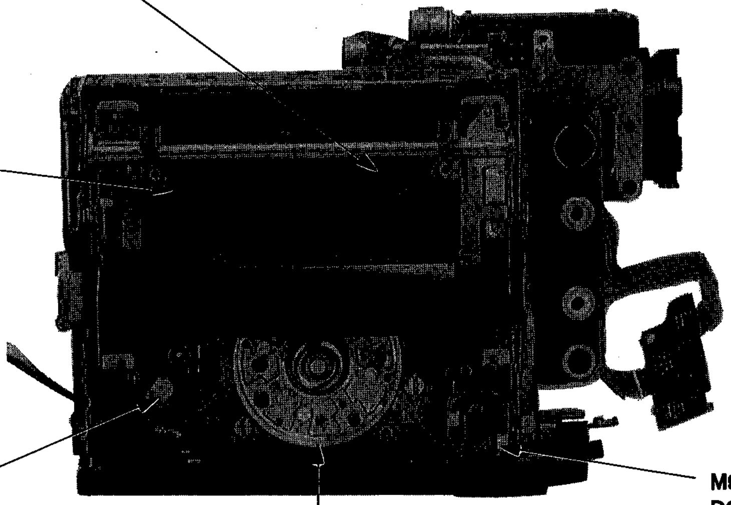
Note: When the following parts are removed, be sure to remember the connection parts because those connectors and etc. are needed to connect later on.

① Refer to 2-2. to remove the front panel assembly.
② Refer to 2-3. to remove the cabinet (L) assembly.
③ Refer to 2-4. to remove the cabinet (R) assembly.
④ Refer to 2-5. to remove the EVF block assembly.
⑤ Refer to 2-9. to remove the bottom cabinet assembly.
⑥ Refer to 2-10. to remove the battery panel assembly and FP-389 flexible board.
⑦ Refer to 2-11. to remove the DD-85 board.
⑧ Refer to 2-12. to remove the lens device, HI-34 board and AV-34 board.


Extension cable (60P)
(J-6082-356-A)
HI-34 board: CN501 ←→ VC-177 board: CN110
Extension cable (16P)
(J-6082-357-A)
CD-146 board: CN112 ←→ VC-177 board: CN112
CD-146 board
Ⓐ
For MA-262 board
(CN303)
For MF-292 board
(CN121)
VC-177 board
HI-34 board
Power cord
(J-6082-223-A)

2-16. INTERNAL VIEWS

— Left side —



S reel deck assembly
X-3945-397-1

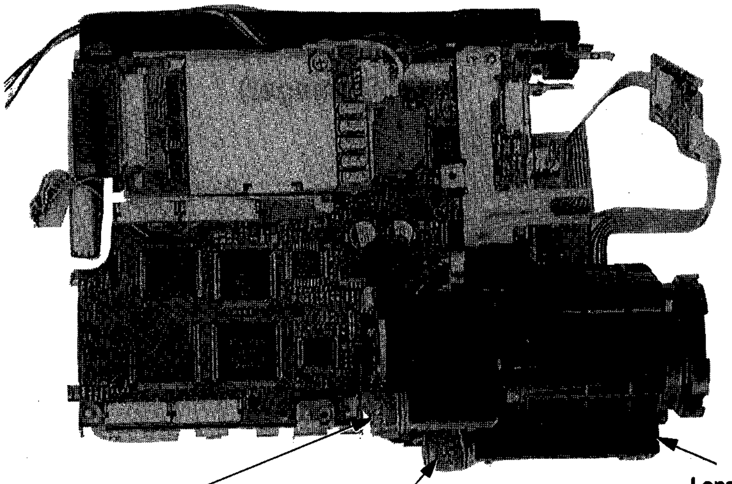
T reel deck assembly
X-3945-398-1

M902
DC motor (SCE-0601A)
(Capstan)
8-835-531-01

M901
Drum assembly
A-7048-831-A (DGH-0D1A-R)

M903
DC motor (Loading)
X-3945-401-1

— Right side —



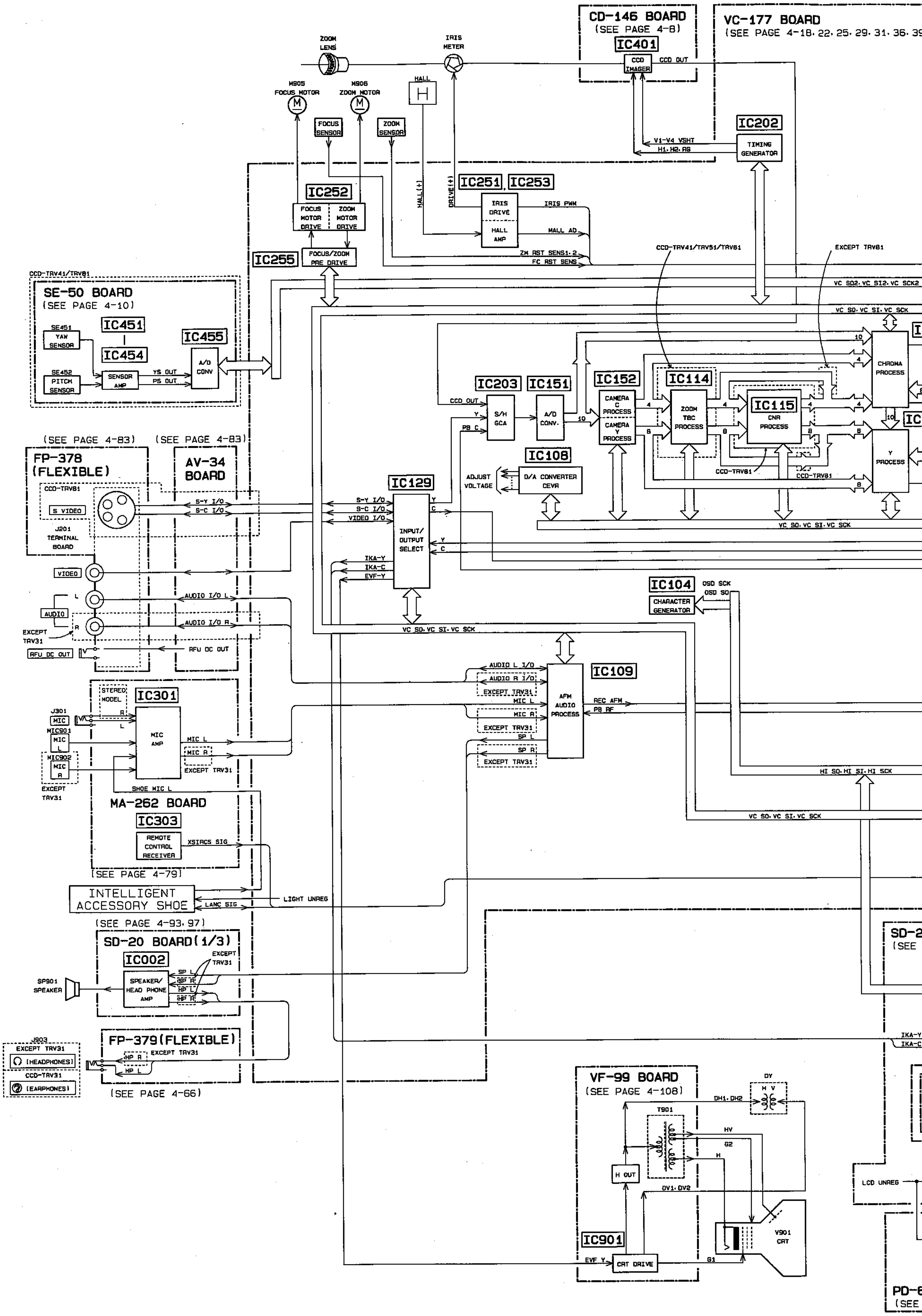
M906
Stepping motor (Zoom)
1-698-759-01

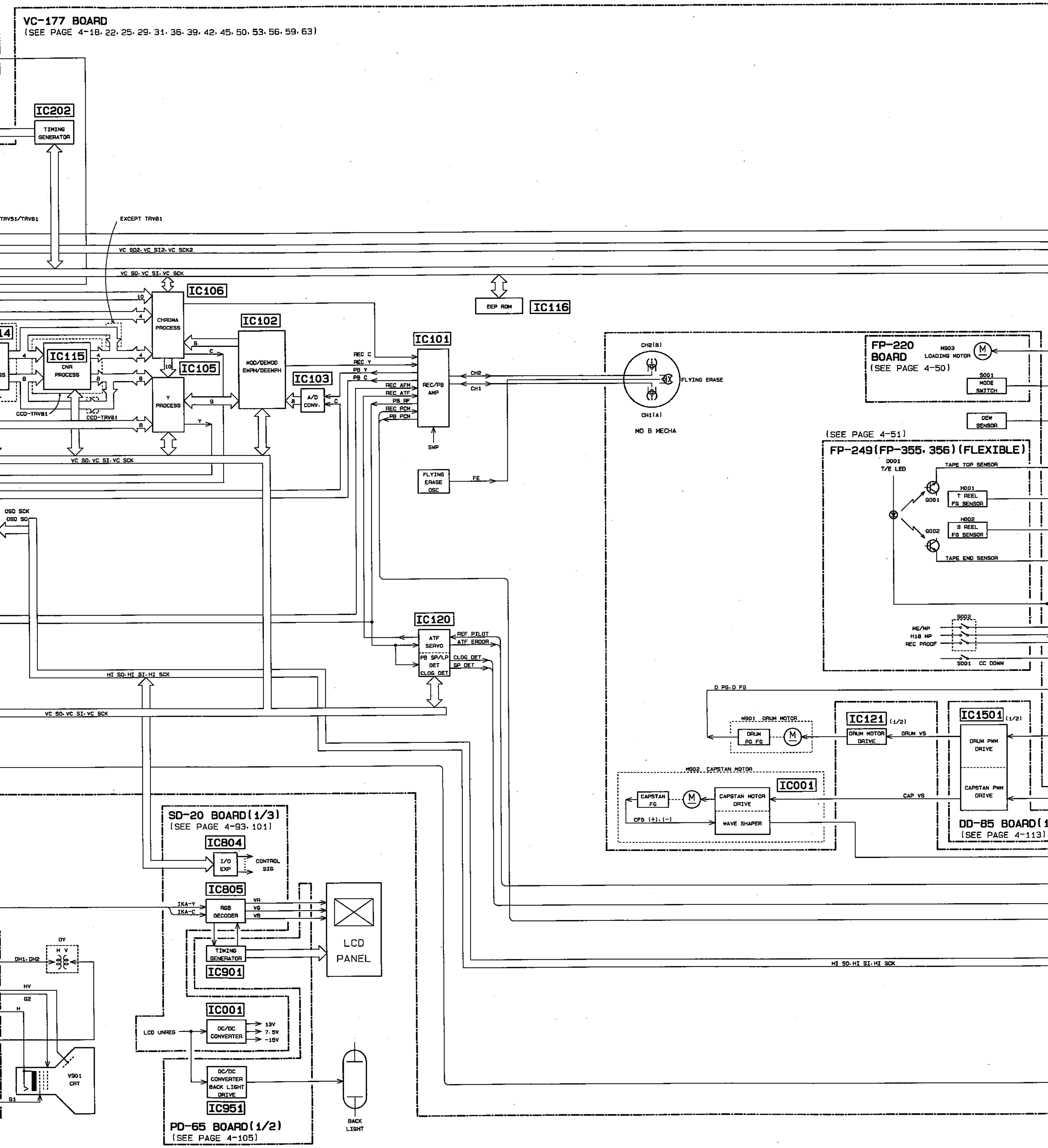
M905
Stepping motor (Focus)
1-698-760-01

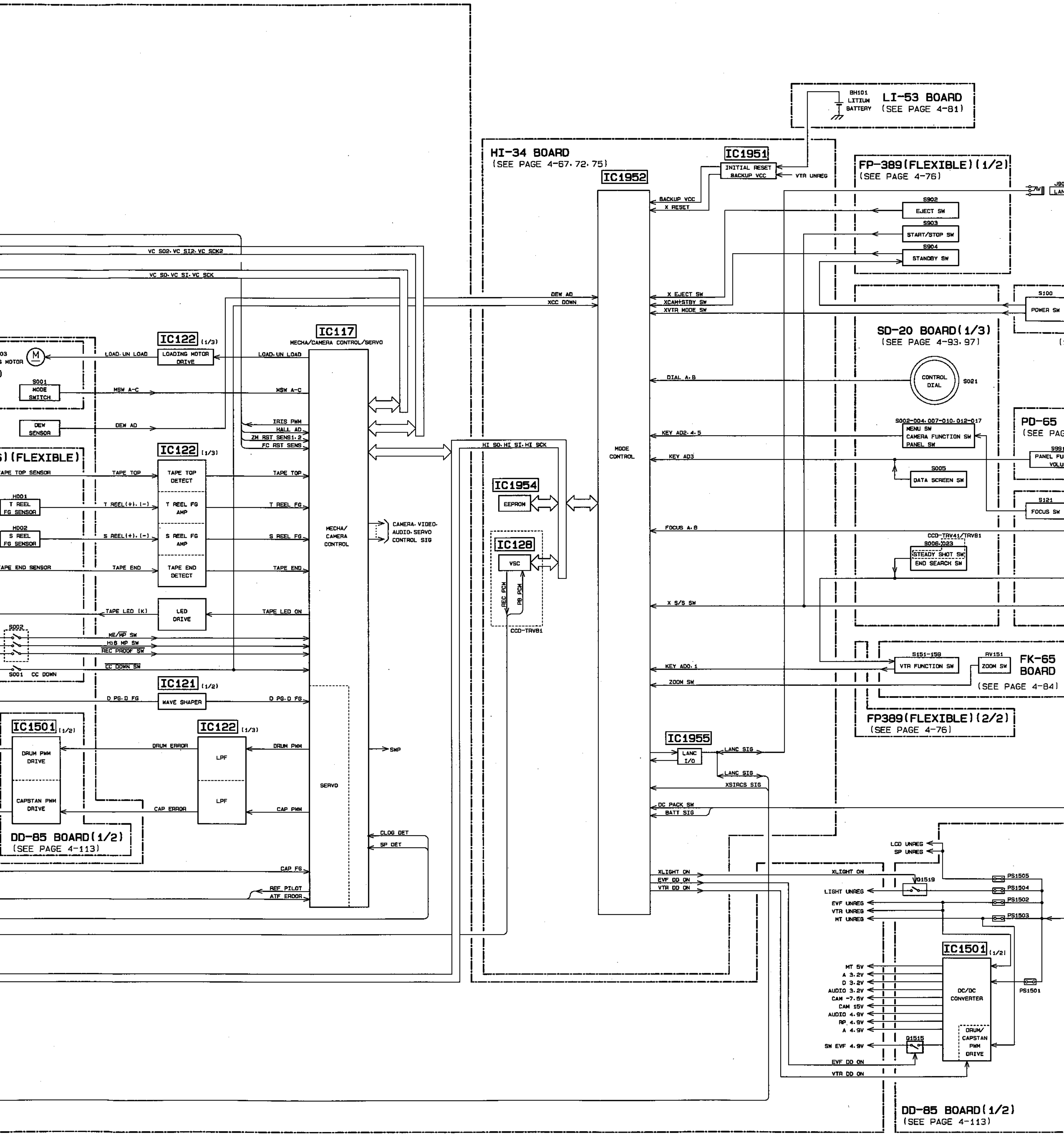
Lens device (LSV-510A/J-N)
8-848-710-01

SECTION 3
BLOCK DIAGRAMS

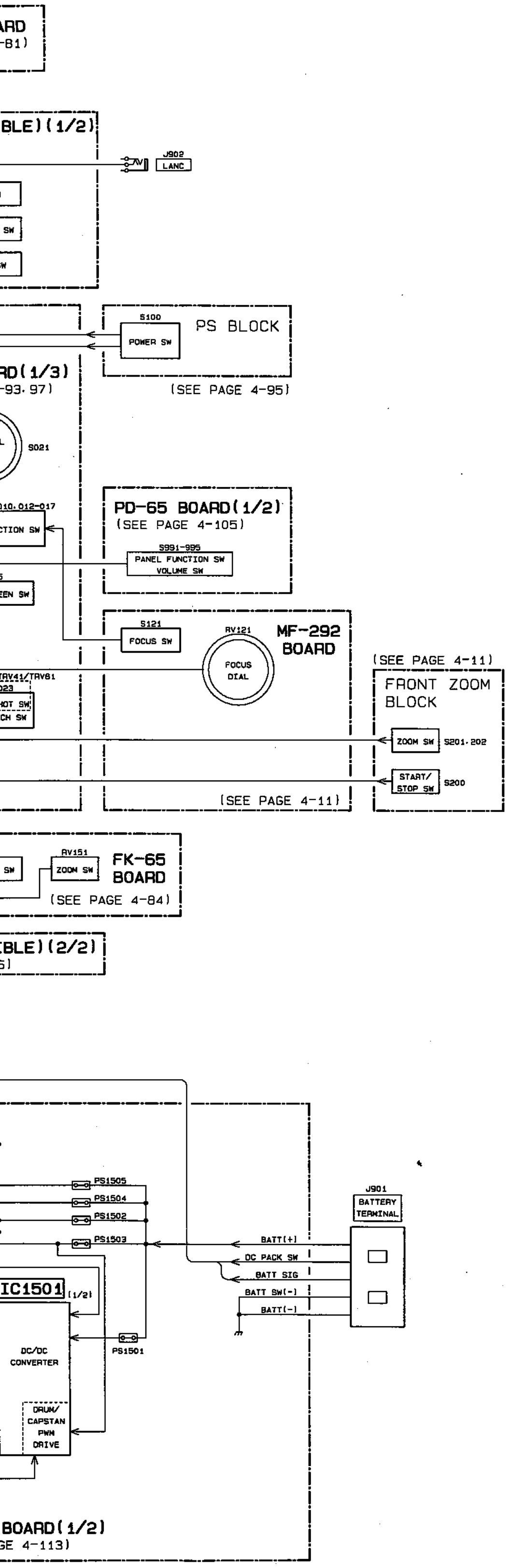
3-1. OVERALL BLOCK DIAGRAM


CD-146 BOARD
(SEE PAGE 4-8)
IC401
CCD IMAGER
CCD OUT
VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 29, 31, 36, 3
ZOOM LENS
IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
HALL
FOCUS SENSOR
ZOOM SENSOR
IC202
TIMING GENERATOR
V1-V4 VSHT
H1, H2, RG
IC252
FOCUS MOTOR DRIVE
ZOOM MOTOR DRIVE
IC251 IC253
IRIS DRIVE
HALL AMP
HALL(+)
DRIVE(+)
IRIS PWM
HALL AD
ZM RST SENS1, 2
FC RST SENS
IC255
FOCUS/ZOOM PRE DRIVE
CCD-TRV41/TRV51/TRV81
EXCEPT TRV81
VC SO2, VC SI2, VC SCK2
VC SO, VC SI, VC SCK
CCD-TRV41/TRV81
SE-50 BOARD
(SEE PAGE 4-10)
SE451 YAW SENSOR
SE452 PITCH SENSOR
IC451
IC454
SENSOR AMP
YS OUT
PS OUT
IC455
A/D CONV
IC203
S/H GCA
CCD OUT
PB C
IC151
A/D CONV.
IC152
CAMERA C PROCESS
CAMERA Y PROCESS
IC114
ZOOM TBC PROCESS
IC115
CNR PROCESS
CHROMA PROCESS
Y PROCESS
CCD-TRV81
IC108
D/A CONVERTER CEVR
ADJUST VOLTAGE
(SEE PAGE 4-83)
FP-378 (FLEXIBLE)
CCD-TRV81
S VIDEO
J201 TERMINAL BOARD
AV-34 BOARD
S-Y I/O
S-C I/O
VIDEO I/O
IC129
INPUT/OUTPUT SELECT
IKA-Y
IKA-C
EVF-Y
VIDEO
AUDIO
EXCEPT TRV31
RFU DC OUT
AUDIO I/O L
AUDIO I/O R
VC SO, VC SI, VC SCK
IC104
CHARACTER GENERATOR
OSD SCK
OSD SO
IC109
AFM AUDIO PROCESS
AUDIO L I/O
AUDIO R I/O
MIC L
MIC R
SP L
SP R
REC AFM
PB RF
J301 MIC
MIC901 MIC L
MIC902 MIC R
STEREO MODEL
IC301
MIC AMP
MIC L
MIC R
SHOE MIC L
MA-262 BOARD
IC303
REMOTE CONTROL RECEIVER
XSIRCS SIG
(SEE PAGE 4-79)
INTELLIGENT ACCESSORY SHOE
LANC SIG
LIGHT UNREG
HI SO, HI SI, HI SCK
(SEE PAGE 4-93, 97)
SD-20 BOARD (1/3)
IC002
SPEAKER/HEAD PHONE AMP
SP L
SP R
HP L
HP R
SP901 SPEAKER
SD-2
(SEE
FP-379 (FLEXIBLE)
J903
EXCEPT TRV31
HEADPHONES
CCD-TRV31
EARPHONES
(SEE PAGE 4-66)
IKA-Y
IKA-C
VF-99 BOARD
(SEE PAGE 4-108)
T901
H OUT
HV
G2
H
DY
DH1, DH2
DV1, DV2
IC901
CRT DRIVE
EVF Y
G1
V901 CRT
LCD UNREG
PD-6
(SEE

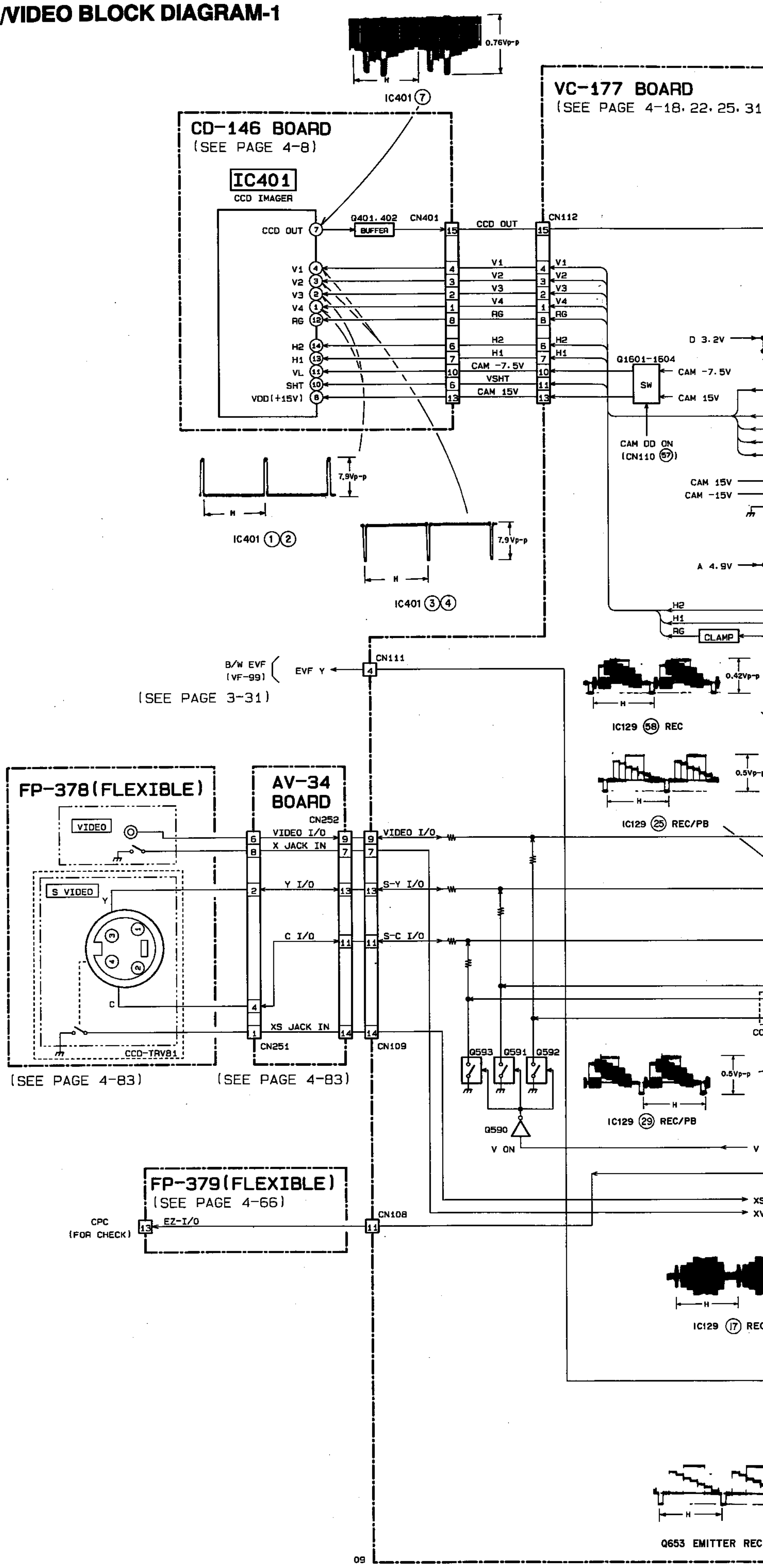

VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 29, 31, 36, 39, 42, 45, 50, 53, 56, 59, 63)
IC202
TIMING GENERATOR
TRV51/TRV81
EXCEPT TRV81
VC SO2, VC SI2, VC SCK2
VC SO, VC SI, VC SCK
IC106
CHROMA PROCESS
IC105
Y PROCESS
IC115
CNR PROCESS
CCD-TRV81
IC102
MOD/DEMOD EMPH/DEEMPH
IC103
A/D CONV.
EEP ROM
IC116
IC101
REC/PB AMP
REC C
REC Y
PB Y
PB C
REC AFM
REC ATF
PB RF
REC PCM
PB PCM
CH2
CH1
SWP
FLYING ERASE OSC
FE
CH2(B)
CH1(A)
FLYING ERASE
MD B MECHA
OSD SCK
OSD SO
IC120
ATF SERVO
PB SP/LP DET
CLOG DET
REF PILOT
ATF ERROR
CLOG DET
SP DET
HI SO, HI SI, HI SCK
VC SO, VC SI, VC SCK
FP-220 BOARD
(SEE PAGE 4-50)
M903 LOADING MOTOR
S001 MODE SWITCH
DEW SENSOR
(SEE PAGE 4-51)
FP-249(FP-355, 356)(FLEXIBLE)
D001 T/E LED
TAPE TOP SENSOR
Q001
H001 T REEL FG SENSOR
H002 S REEL FG SENSOR
Q002
TAPE END SENSOR
S002
ME/MP
H18 MP
REC PROOF
S001 CC DOWN
D PG, D FG
M901 DRUM MOTOR
DRUM PG FG
IC121 (1/2)
DRUM MOTOR DRIVE
DRUM VS
IC1501 (1/2)
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
CAP VS
M902 CAPSTAN MOTOR
CAPSTAN FG
IC001
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CFG (+), (-)
DD-85 BOARD(1
(SEE PAGE 4-113)
SD-20 BOARD(1/3)
(SEE PAGE 4-93, 101)
IC804
I/O EXP
CONTROL SIG
IC805
RGB DECODER
IKA-Y
IKA-C
VR
VG
VB
TIMING GENERATOR
IC901
LCD PANEL
IC001
DC/DC CONVERTER
LCD UNREG
13V
7.5V
-15V
DC/DC CONVERTER BACK LIGHT DRIVE
IC951
PD-65 BOARD(1/2)
(SEE PAGE 4-105)
BACK LIGHT
DY
H V
DH1, DH2
HV
G2
H
G1
V901 CRT
HI SO, HI SI, HI SCK

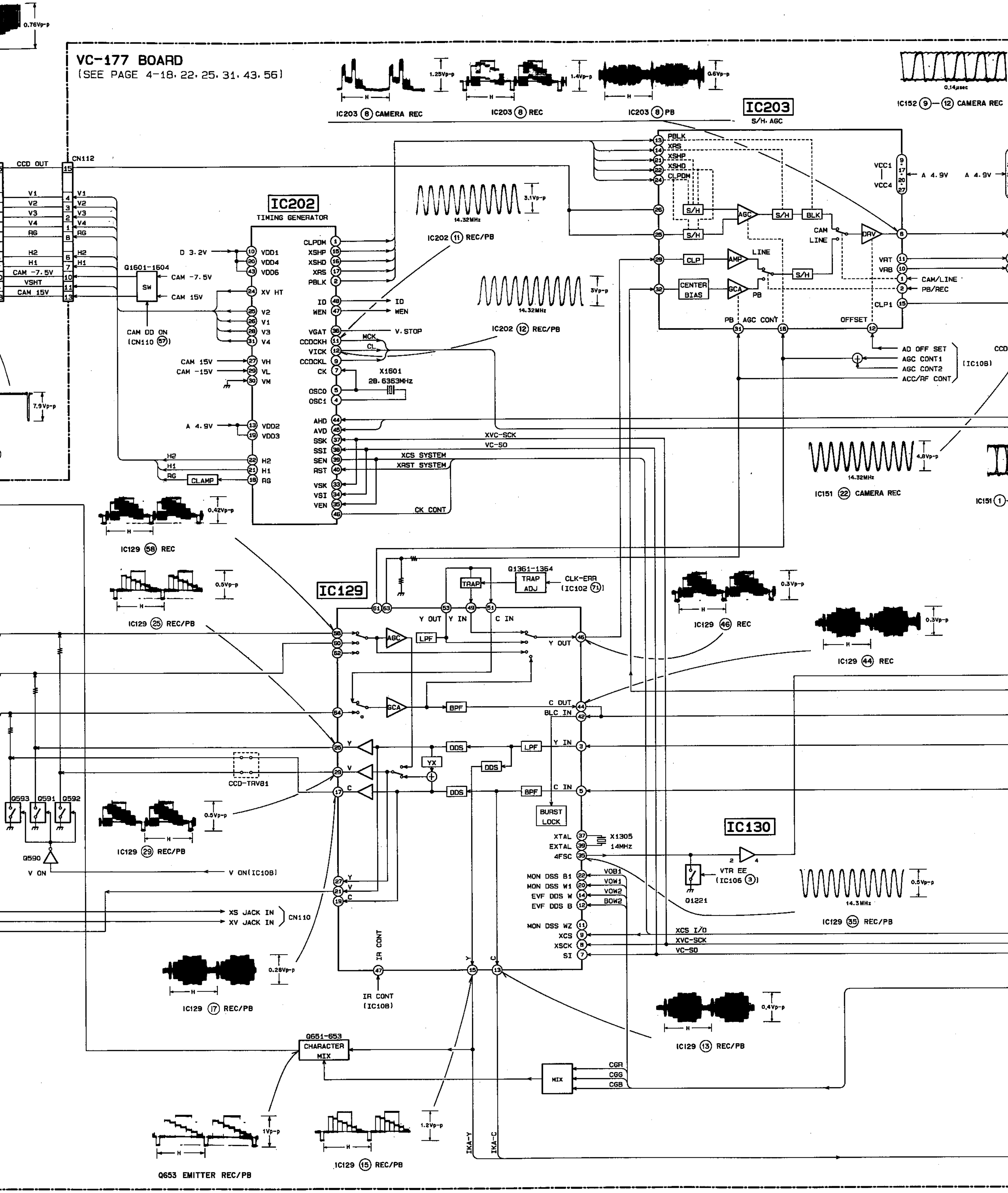


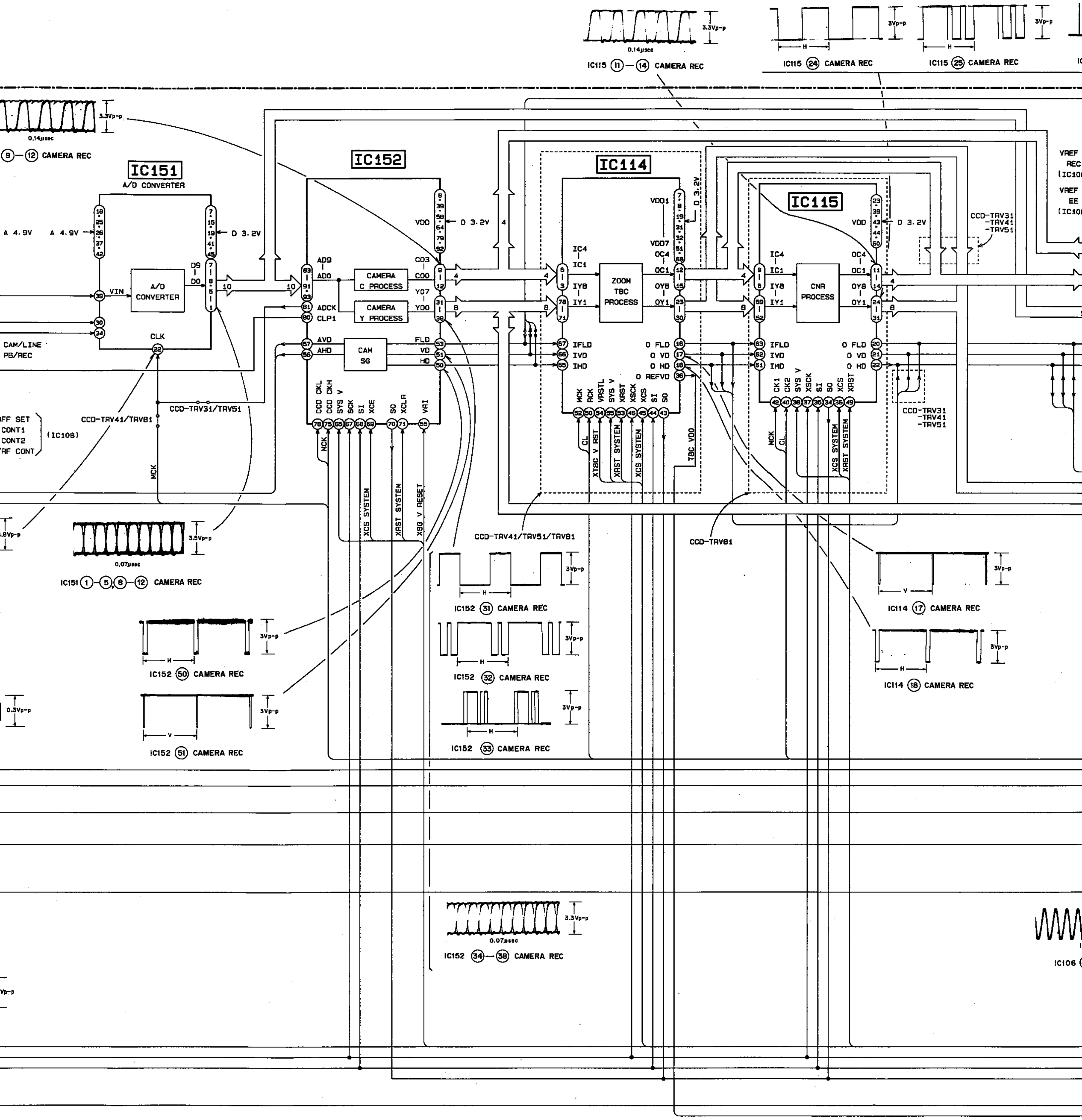
LI-53 BOARD
(SEE PAGE 4-81)
BH101 LITIUM BATTERY
HI-34 BOARD
(SEE PAGE 4-67, 72, 75)
IC1951
INITIAL RESET
BACKUP VCC
VTR UNREG
IC1952
BACKUP VCC
X RESET
MODE CONTROL
FP-389(FLEXIBLE)(1/2)
(SEE PAGE 4-76)
S902 EJECT SW
S903 START/STOP SW
S904 STANDBY SW
S100 POWER SW
X EJECT SW
XCAM+STBY SW
XVTR MODE SW
DEW AD
XCC DOWN
VC SO2, VC SI2, VC SCK2
VC SO, VC SI, VC SCK
SD-20 BOARD(1/3)
(SEE PAGE 4-93, 97)
CONTROL DIAL
S021
DIAL A, B
S002-004, 007-010, 012-017
MENU SW
CAMERA FUNCTION SW
PANEL SW
KEY AD2, 4, 5
KEY AD3
S005 DATA SCREEN SW
PD-65
S121 FOCUS SW
FOCUS A, B
CCD-TRV41/TRV81
S006, 023
STEADY SHOT SW
END SEARCH SW
X S/S SW
S151-159 VTR FUNCTION SW
RV151 ZOOM SW
FK-65 BOARD
(SEE PAGE 4-84)
KEY AD0, 1
ZOOM SW
FP389(FLEXIBLE)(2/2)
(SEE PAGE 4-76)
IC117
MECHA/CAMERA CONTROL/SERVO
MECHA/ CAMERA CONTROL
CAMERA, VIDEO, AUDIO, SERVO CONTROL SIG
SERVO
SWP
CLOG DET
SP DET
CAP FG
REF PILOT
ATF ERROR
IC122 (1/3)
LOADING MOTOR DRIVE
LOAD, UN LOAD
M
MOTOR
S001 MODE SWITCH
MSW A-C
DEW SENSOR
IRIS PWM
HALL AD
ZM RST SENS1, 2
FC RST SENS
HI SO, HI SI, HI SCK
(FLEXIBLE)
TAPE TOP SENSOR
TAPE TOP
TAPE TOP DETECT
H001 T REEL FG SENSOR
T REEL(+), (-)
T REEL FG AMP
T REEL FG
H002 S REEL FG SENSOR
S REEL(+), (-)
S REEL FG AMP
S REEL FG
TAPE END SENSOR
TAPE END
TAPE END DETECT
TAPE LED (K)
LED DRIVE
TAPE LED ON
S002
ME/MP SW
Hi8 MP SW
REC PROOF SW
CC DOWN SW
S001 CC DOWN
IC121 (1/2)
WAVE SHAPER
D PG, D FG
IC1501 (1/2)
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
LPF
DRUM ERROR
DRUM PWM
CAP ERROR
CAP PWM
DD-85 BOARD(1/2)
(SEE PAGE 4-113)
IC1954 EEPROM
IC128 VSC
REC PCM
PB PCM
CCD-TRV81
IC1955 LANC I/O
LANC SIG
XSIRCS SIG
DC PACK SW
BATT SIG
XLIGHT ON
EVF DD ON
VTR DD ON
LCD UNREG
SP UNREG
Q1519
LIGHT UNREG
EVF UNREG
VTR UNREG
MT UNREG
PS1505
PS1504
PS1502
PS1503
PS1501
IC1501 (1/2)
DC/DC CONVERTER
DRUM/ CAPSTAN PWM DRIVE
MT 5V
A 3.2V
D 3.2V
AUDIO 3.2V
CAM -7.5V
CAM 15V
AUDIO 4.9V
RP 4.9V
A 4.9V
Q1515
SW EVF 4.9V
EVF DD ON
VTR DD ON
DD-85 BOARD(1/2)
(SEE PAGE 4-113)


ARD
-B1)
BLE)(1/2)
J902
LANC
SW
W
S100
POWER SW
PS BLOCK
(SEE PAGE 4-95)
RD(1/3)
-93.97)
S021
PD-65 BOARD(1/2)
(SEE PAGE 4-105)
010.012-017
CTION SW
S991-995
PANEL FUNCTION SW
VOLUME SW
EEN SW
S121
FOCUS SW
RV121
FOCUS
DIAL
MF-292
BOARD
(SEE PAGE 4-11)
FRONT ZOOM
BLOCK
RV41/TRV81
023
HOT SW
CH SW
ZOOM SW
S201.202
START/
STOP SW
S200
(SEE PAGE 4-11)
SW
RV151
ZOOM SW
FK-65
BOARD
(SEE PAGE 4-84)
BLE)(2/2)
5)
PS1505
PS1504
PS1502
PS1503
J901
BATTERY
TERMINAL
BATT(+)
DC PACK SW
BATT SIG
BATT SW(-)
BATT(-)
IC1501
(1/2)
DC/DC
CONVERTER
PS1501
DRUM/
CAPSTAN
PWM
DRIVE
BOARD(1/2)
GE 4-113)

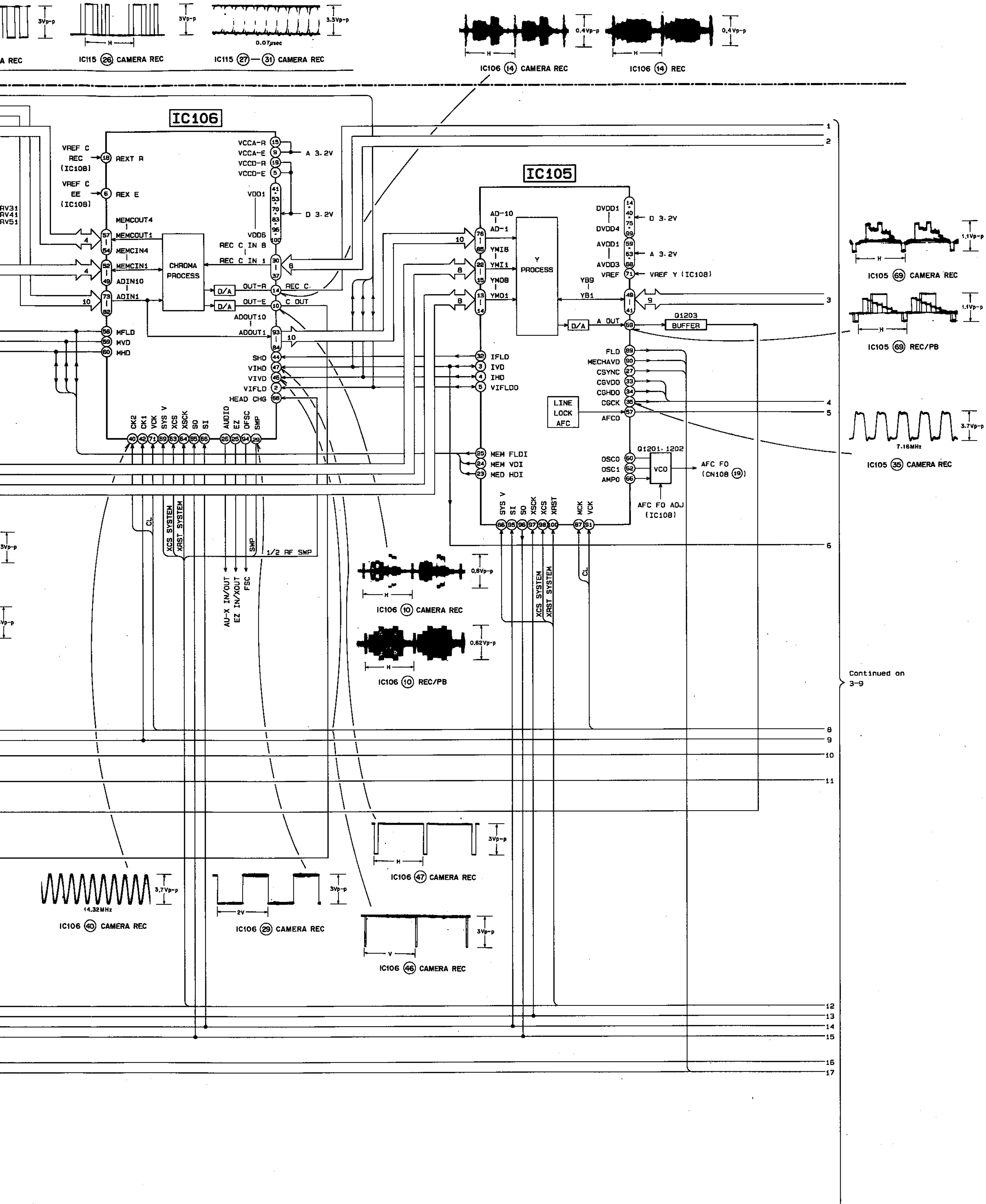
3-2. CAMERA/VIDEO BLOCK DIAGRAM-1


0.76Vp-p
H
IC401 ⑦
VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 31
CD-146 BOARD
(SEE PAGE 4-8)
IC401
CCD IMAGER
CCD OUT
Q401, 402
BUFFER
CN401
CN112
V1
V2
V3
V4
RG
H2
H1
VL
SHT
VDD(+15V)
CAM -7.5V
VSHT
CAM 15V
D 3.2V
Q1601-1604
SW
CAM OD ON
(CN110 (57))
CAM 15V
CAM -15V
A 4.9V
7.9Vp-p
IC401 ①②
IC401 ③④
CLAMP
B/W EVF
(VF-99)
EVF Y
CN111
(SEE PAGE 3-31)
0.42Vp-p
IC129 (58) REC
0.5Vp-p
IC129 (25) REC/PB
FP-378(FLEXIBLE)
AV-34
BOARD
CN252
VIDEO
S VIDEO
VIDEO I/O
X JACK IN
Y I/O
S-Y I/O
C I/O
S-C I/O
XS JACK IN
CN251
CN109
CCD-TRV81
(SEE PAGE 4-83)
(SEE PAGE 4-83)
Q593
Q591
Q592
Q590
V ON
IC129 (29) REC/PB
FP-379(FLEXIBLE)
(SEE PAGE 4-66)
CPC
(FOR CHECK)
EZ-I/O
CN108
IC129 (17) REC
Q653 EMITTER REC
09


0.76Vp-p
VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 31, 43, 56)
1.25Vp-p
IC203 ⑧ CAMERA REC
1.4Vp-p
IC203 ⑧ REC
0.6Vp-p
IC203 ⑧ PB
0.14μsec
IC152 ⑨—⑫ CAMERA REC
IC203
S/H, AGC
PBLK
XRS
XSHP
XSHD
CLPDM
S/H
AGC
BLK
CAM
LINE
DRV
CLP
AMP
LINE
CENTER BIAS
GCA
PB
PB AGC CONT
OFFSET
VCC1
VCC4
A 4.9V
VRT
VRB
CAM/LINE
PB/REC
CLP1
AD OFF SET
AGC CONT1
AGC CONT2
ACC/RF CONT
(IC108)
CCD
CCD OUT
CN112
V1
V2
V3
V4
RG
H2
H1
CAM -7.5V
VSHT
CAM 15V
Q1601-1604
SW
CAM -7.5V
CAM 15V
CAM DD ON (CN110 57)
7.9Vp-p
IC202
TIMING GENERATOR
D 3.2V
VDD1
VDD4
VDD6
XV HT
V2
V1
V3
V4
CAM 15V
CAM -15V
VH
VL
VM
A 4.9V
VDD2
VDD3
H2
H1
RG
CLAMP
CLPDM
XSHP
XSHD
XRS
PBLK
ID
WEN
VGAT
CCDCKH
VICK
CCDCKL
CK
OSCO
OSCI
AHD
AVD
SSK
SSI
SEN
RST
VSK
VSI
VEN
ID
WEN
V.STOP
MCK
CL
X1601
28.6363MHz
XVC-SCK
VC-SO
XCS SYSTEM
XRST SYSTEM
CK CONT
3.1Vp-p
14.32MHz
IC202 ⑪ REC/PB
3Vp-p
14.32MHz
IC202 ⑫ REC/PB
4.8Vp-p
14.32MHz
IC151 ㉒ CAMERA REC
IC151 ①
0.42Vp-p
IC129 (58) REC
0.5Vp-p
IC129 ㉕ REC/PB
IC129
Q1361-1364
TRAP ADJ
TRAP
CLK-ERR (IC102 (71))
Y OUT
Y IN
C IN
AGC
LPF
Y OUT
GCA
BPF
C OUT
BLC IN
Y IN
C IN
DDS
LPF
YX
DDS
DDS
BPF
BURST LOCK
XTAL
EXTAL
4FSC
X1305
14MHz
MON DSS B1
MON DSS W1
EVF DDS W
EVF DDS B
MON DSS WZ
XCS
XSCK
SI
VOB1
VOW1
VOW2
BOW2
XCS I/O
XVC-SCK
VC-SO
IR CONT
IR CONT (IC108)
0.3Vp-p
IC129 ㊻ REC
0.3Vp-p
IC129 ㊹ REC
CCD-TRV81
Q593
Q591
Q592
Q590
V ON
V ON (IC108)
0.5Vp-p
IC129 ㉙ REC/PB
IC130
VTR EE (IC106 ③)
Q1221
0.5Vp-p
14.3MHz
IC129 ㉟ REC/PB
XS JACK IN
XV JACK IN
CN110
0.28Vp-p
IC129 ⑰ REC/PB
0.4Vp-p
IC129 ⑬ REC/PB
Q651-653
CHARACTER MIX
MIX
CGR
CGG
CGB
IKA-Y
IKA-C
1Vp-p
Q653 EMITTER REC/PB
1.2Vp-p
IC129 ⑮ REC/PB
H

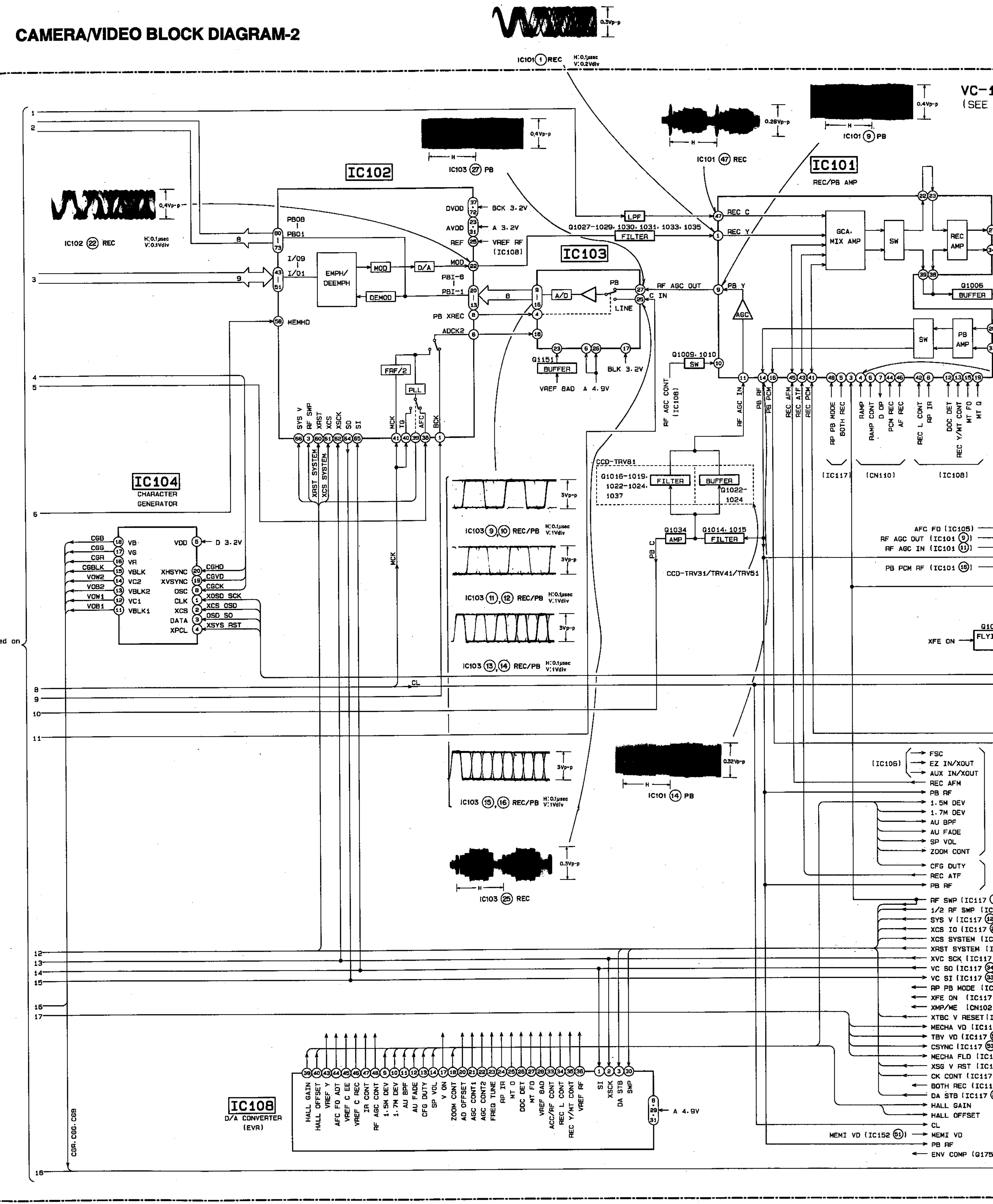


3.3Vp-p
0.14μsec
IC115 ⑪—⑭ CAMERA REC
3Vp-p
H
IC115 ㉔ CAMERA REC
3Vp-p
H
IC115 ㉕ CAMERA REC
3.3Vp-p
0.14μsec
⑨—⑫ CAMERA REC
IC151
A/D CONVERTER
A 4.9V
A 4.9V
D 3.2V
VIN
A/D CONVERTER
D9
D0
CLK
CAM/LINE
PB/REC
FF SET
CONT1
CONT2
RF CONT
(IC108)
CCD-TRV41/TRV81
CCD-TRV31/TRV51
MCK
IC152
VDD
D 3.2V
AD9
AD0
ADCK
CLP1
CAMERA C PROCESS
CAMERA Y PROCESS
CO3
CO0
YO7
YO0
AVD
AHD
CAM SG
FLD
VD
HD
CCD CKL
CCD CKH
SYS V
SCK
SI
XCE
SO
XCLR
VRI
MCK
XCS SYSTEM
XRST SYSTEM
XSG V RESET
10
10
4
8
4
IC114
VDD1
VDD7
D 3.2V
IC4
IC1
IY8
IY1
ZOOM TBC PROCESS
OC4
OC1
OY8
OY1
IFLD
IVD
IHD
O FLD
O VD
O HD
O REFVD
MCK
RCK
VRSTL
SYS V
XRST
XSCK
XCS
SI
SO
CL
XTBC V RST
XRST SYSTEM
XCS SYSTEM
TBC VDD
CCD-TRV41/TRV51/TRV81
IC115
VDD
D 3.2V
IC4
IC1
IY8
IY1
CNR PROCESS
OC4
OC1
OY8
OY1
IFLD
IVD
IHD
O FLD
O VD
O HD
CK1
CK2
SYS V
XSCK
SI
SO
XCS
XRST
MCK
CL
XCS SYSTEM
XRST SYSTEM
CCD-TRV81
CCD-TRV31 -TRV41 -TRV51
CCD-TRV31 -TRV41 -TRV51
VREF REC (IC10
VREF EE (IC10
.8Vp-p
3.5Vp-p
0.07μsec
IC151 ①—⑤,⑧—⑫ CAMERA REC
3Vp-p
H
IC152 ㊿ CAMERA REC
0.3Vp-p
3Vp-p
V
IC152 (51) CAMERA REC
3Vp-p
H
IC152 ㉛ CAMERA REC
3Vp-p
H
IC152 ㉜ CAMERA REC
3Vp-p
H
IC152 ㉝ CAMERA REC
3Vp-p
V
IC114 ⑰ CAMERA REC
3Vp-p
H
IC114 ⑱ CAMERA REC
3.3Vp-p
0.07μsec
IC152 ㉞—㊳ CAMERA REC
IC106
Vp-p


3Vp-p
A REC
IC115 ㉖ CAMERA REC
3Vp-p
H
0.07μsec
3.3Vp-p
IC115 ㉗—㉛ CAMERA REC
0.4Vp-p
H
IC106 ⑭ CAMERA REC
0.4Vp-p
H
IC106 ⑭ REC
IC106
VREF C REC (IC108)
REXT R
VREF C EE (IC108)
REX E
VCCA-R
VCCA-E
VCCD-R
VCCD-E
A 3.2V
VDD1
VDD6
D 3.2V
RV31
RV41
RV51
MEMCOUT4
MEMCOUT1
MEMCIN4
MEMCIN1
ADIN10
ADIN1
CHROMA PROCESS
REC C IN 8
REC C IN 1
OUT-R
OUT-E
REC C
C OUT
D/A
ADOUT10
ADOUT1
MFLD
MVD
MHD
SHD
VIHD
VIVD
VIFLD
HEAD CHG
CK2
CK1
VCK
SYS V
XCS
XSCK
SO
SI
AUDIO
EZ
OFSC
SWP
CL
XCS SYSTEM
XRST SYSTEM
SWP
1/2 RF SWP
AU-X IN/OUT
EZ IN/XOUT
FSC
IC105
AD-10
AD-1
YMI8
YMI1
YMO8
YMO1
Y PROCESS
YB9
YB1
DVDD1
DVDD4
AVDD1
AVDD3
VREF
D 3.2V
A 3.2V
VREF Y (IC108)
D/A
A OUT
Q1203
BUFFER
FLD
MECHAVD
CSYNC
CGVDO
CGHDO
CGCK
AFCO
LINE LOCK AFC
IFLD
IVD
IHD
VIFLDO
MEM FLDI
MEM VDI
MED HDI
Q1201, 1202
OSCO
OSC1
AMPO
VCO
AFC FO (CN108 ⑲)
AFC FO ADJ (IC108)
SYS V
SI
SO
XSCK
XCS
XRST
MCK
VCK
XCS SYSTEM
XRST SYSTEM
CL
1.1Vp-p
H
IC105 ㊾ CAMERA REC
1.1Vp-p
H
IC105 ㊾ REC/PB
3.7Vp-p
7.16MHz
IC105 ㉟ CAMERA REC
0.8Vp-p
H
IC106 ⑩ CAMERA REC
0.62Vp-p
H
IC106 ⑩ REC/PB
3Vp-p
H
IC106 ㊼ CAMERA REC
3.7Vp-p
14.32MHz
IC106 ㊵ CAMERA REC
3Vp-p
2V
IC106 ㉙ CAMERA REC
3Vp-p
V
IC106 ㊻ CAMERA REC
3Vp-p
Vp-p
1
2
3
4
5
6
8
9
10
11
12
13
14
15
16
17
18

Continued on 3-9

CAMERA/VIDEO BLOCK DIAGRAM-2


0.3Vp-p
IC101 ① REC
H:0.1μsec V:0.2Vdiv
VC-1
(SEE
0.4Vp-p
IC101 ⑨ PB
0.28Vp-p
IC101 ㊼ REC
0.4Vp-p
IC103 ㉗ PB
IC102
IC101
REC/PB AMP
0.4Vp-p
IC102 ㉒ REC
H:0.1μsec V:0.1Vdiv
PB08
PB01
I/O9
I/O1
EMPH/ DEEMPH
MOD
D/A
DEMOD
MEMHD
DVDD
AVDD
REF
MOD
PBI-8
PBI-1
PB XREC
ADCK2
BCK 3.2V
A 3.2V
VREF RF (IC108)
Q1027-1029, 1030, 1031, 1033, 1035
LPF
FILTER
IC103
A/D
PB
LINE
RF AGC OUT
C IN
REC C
REC Y
PB Y
AGC
GCA, MIX AMP
SW
REC AMP
Q1006 BUFFER
SW
PB AMP
Q1151 BUFFER
VREF 8AD
A 4.9V
BLK 3.2V
Q1009, 1010 SW
FRF/2
PLL
SYS V
RF SWP
XRST
XCS
XSCK
SO
SI
MCK
TG
AFC
BCK
RF AGC CONT (IC108)
RF AGC IN
PB RF
PB PCM
REC AFM
REC ATF
REC PCM
RP PB MODE
BOTH REC
RAMP
RAMP CONT
D OP
PCM REC
AF REC
REC L CONT
RP IR
DOC DET
REC Y/MT CONT
MT FO
MT O
(IC117)
(CN110)
(IC108)
XRST SYSTEM
XCS SYSTEM
IC104
CHARACTER GENERATOR
CCD-TRV81
Q1016-1019, 1022-1024, 1037
FILTER
BUFFER
Q1022-1024
Q1034 AMP
Q1014, 1015 FILTER
PB C
CCD-TRV31/TRV41/TRV51
AFC FO (IC105)
RF AGC OUT (IC101 ⑨)
RF AGC IN (IC101 ⑪)
PB PCM RF (IC101 ⑯)
3Vp-p
IC103 ⑨,⑩ REC/PB H:0.1μsec V:1Vdiv
3Vp-p
IC103 ⑪,⑫ REC/PB H:0.1μsec V:1Vdiv
3Vp-p
IC103 ⑬,⑭ REC/PB H:0.1μsec V:1Vdiv
CGB
CGG
CGR
CGBLK
VOW2
VOB2
VOW1
VOB1
VB
VG
VR
VBLK
VC2
VBLK2
VC1
VBLK1
VDD
D 3.2V
XHSYNC
XVSYNC
OSC
CLK
XCS
DATA
XPCL
CGHD
CGVD
CGCK
XOSD SCK
XCS OSD
OSD SO
XSYS RST
Q1C
FLYI
XFE ON
CL
3Vp-p
IC103 ⑮,⑯ REC/PB H:0.1μsec V:1Vdiv
0.32Vp-p
IC101 ⑭ PB
0.3Vp-p
IC103 ㉕ REC
(IC106)
FSC
EZ IN/XOUT
AUX IN/XOUT
REC AFM
PB RF
1.5M DEV
1.7M DEV
AU BPF
AU FADE
SP VOL
ZOOM CONT
CFG DUTY
REC ATF
PB RF
RF SWP (IC117
1/2 RF SWP (IC
SYS V (IC117 ㊷
XCS IO (IC117
XCS SYSTEM (IC
XRST SYSTEM (I
XVC SCK (IC117
VC SO (IC117 ㉞
VC SI (IC117 ㉝
RP PB MODE (IC
XFE ON (IC117
XMP/ME (CN102
XTBC V RESET (I
MECHA VD (IC11
TBV VD (IC117
CSYNC (IC117 ㊿
MECHA FLD (IC1
XSG V RST (IC1
CK CONT (IC117
BOTH REC (IC11
DA STB (IC117
HALL GAIN
HALL OFFSET
CL
MEMI VD (IC152 (51))
MEMI VD
PB RF
ENV COMP (Q175
HALL GAIN
HALL OFFSET
VREF Y
AFC FO ADT
VREF C EE
VREF C REC
IR CONT
RF AGC CONT
1.5M DEV
1.7M DEV
AU BPF
AU FADE
CFG DUTY
SP VOL
V ON
ZOOM CONT
AD OFFSET
AGC CONT1
AGC CONT2
FREQ TUNE
RP IR
MT O
DOC DET
MT FO
VREF 8AD
ACC/RF CONT
REC L CONT
REC Y/MT CONT
VREF RF
SI
XSCK
DA STB
SWP
A 4.9V
IC108
D/A CONVERTER (EVR)
CGR, CGG, CGB
ed on
1
2
3
4
5
6
8
9
10
11
12
13
14
15
16
17
18

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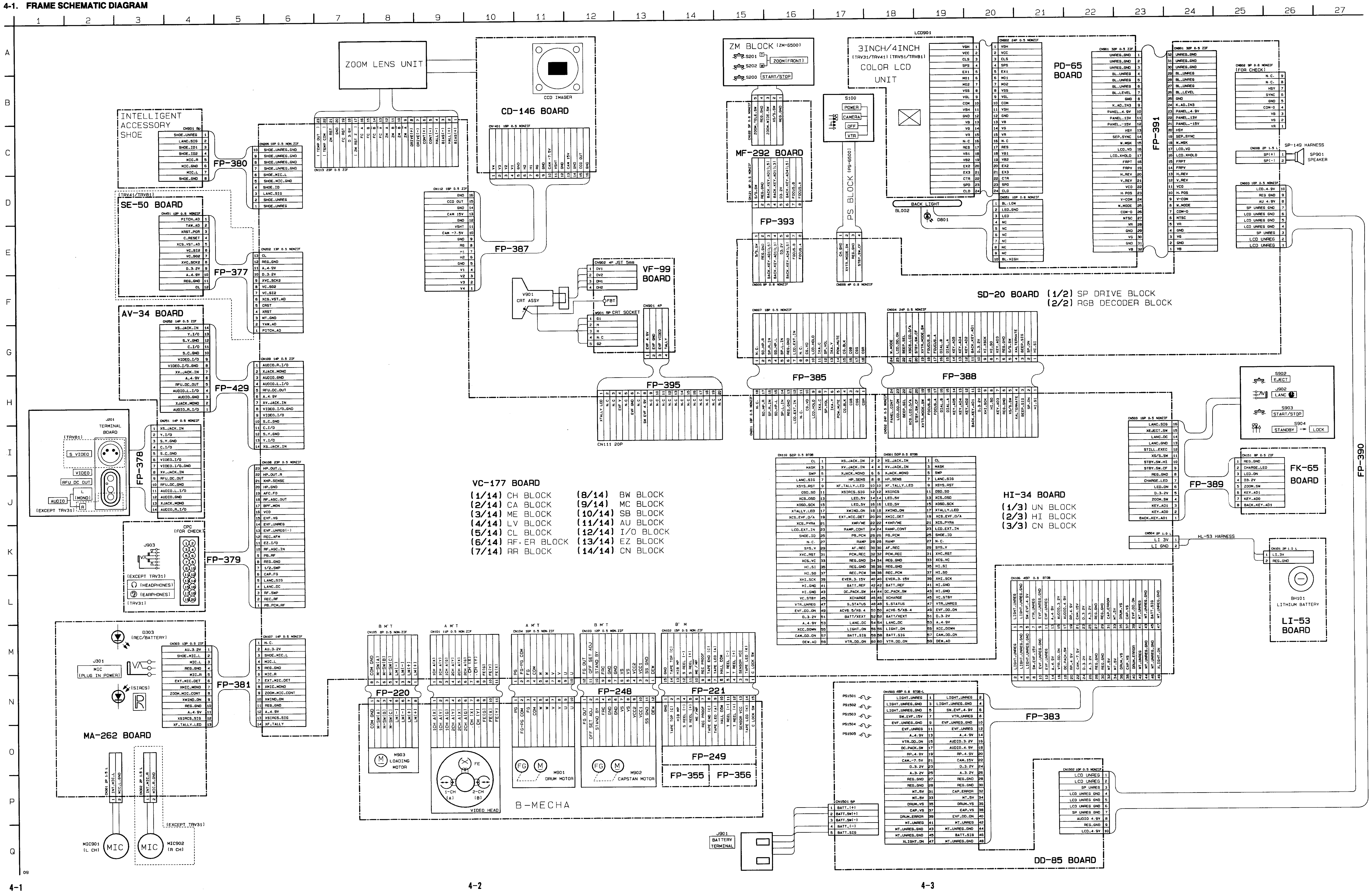
Personal A&V Products Company

9-973-883-11

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM


ZOOM LENS UNIT
CD-146 BOARD
CCD IMAGER
ZM BLOCK (ZM-6500)
START/STOP
ZOOM (FRONT)
MF-292 BOARD
FP-393
3INCH/4INCH (TRV31/TRV41) (TRV51/TRV81) COLOR LCD UNIT
LCD901
PD-65 BOARD
FP-391
S100
POWER
CAMERA
OFF
VTR
PS BLOCK (PS-6500)
BACK LIGHT
BL002
D801
SP-149 HARNESS
SP901 SPEAKER
INTELLIGENT ACCESSORY SHOE
FP-380
(TRV41/TRV81)
SE-50 BOARD
FP-377
AV-34 BOARD
FP-429
FP-387
VF-99 BOARD
V901 CRT ASSY
CRT SOCKET
SD-20 BOARD (1/2) SP DRIVE BLOCK
(2/2) RGB DECODER BLOCK
FP-395
FP-385
FP-388
J201 TERMINAL BOARD
(TRV81)
S VIDEO
VIDEO
RFU DC OUT
AUDIO
(MONO)
(EXCEPT TRV31)
FP-378
CPC (FOR CHECK)
J903
(EXCEPT TRV31)
(HEADPHONES)
(EARPHONES)
(TRV31)
FP-379
VC-177 BOARD
(1/14) CH BLOCK
(2/14) CA BLOCK
(3/14) ME BLOCK
(4/14) LV BLOCK
(5/14) CL BLOCK
(6/14) RF, ER BLOCK
(7/14) RR BLOCK
(8/14) BW BLOCK
(9/14) MC BLOCK
(10/14) SB BLOCK
(11/14) AU BLOCK
(12/14) I/O BLOCK
(13/14) EZ BLOCK
(14/14) CN BLOCK
HI-34 BOARD
(1/3) UN BLOCK
(2/3) HI BLOCK
(3/3) CN BLOCK
S902 EJECT
J902 LANC
S903 START/STOP
S904 STANDBY LOCK
FK-65 BOARD
FP-389
FP-390
HL-53 HARNESS
BH101 LITHIUM BATTERY
LI-53 BOARD
D303 (REC/BATTERY)
J301 MIC (PLUG IN POWER)
(SIRCS)
FP-381
MA-262 BOARD
MIC901 (L CH)
MIC902 (R CH)
MIC
(EXCEPT TRV31)
FP-220
M903 LOADING MOTOR
FE
1-CH (A)
2-CH (B)
VIDEO HEAD
B-MECHA
FP-248
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
FP-221
FP-249
FP-355
FP-356
FP-383
PS1501
PS1502
PS1503
PS1504
PS1505
J901 BATTERY TERMINAL
DD-85 BOARD

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this , the necessary note is printed in each block.)

- **For printed wiring boards.**
- ▨ : Pattern from the side which enables seeing.
  (The other layers'patterns are not indicated.)
- Circled numbers refer to waveforms.
- (B) or (F), etc. of capacitors indicate the temperature characteristics.
- ○: Through hole .

* Caution:

Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component side)	Parts on the parts face side seen from the parts face are indicated.

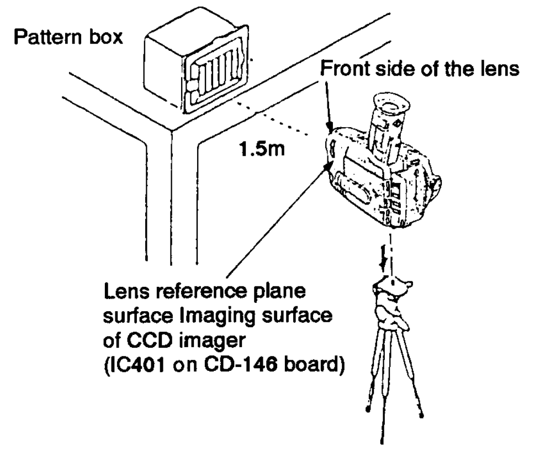
- **For schematic diagrams.**
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
  Chip resistor are 1/16W unless otherwise noted.
  kΩ : 1000Ω , MΩ : 1000kΩ .
- All capacitors are in µF unless otherwise noted. pF: µµF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.
- ━ : B+ Line.
- ‐ ‐ ‐ : B– Line.
- ⇒ : IN/OUT direction of (+, –) B LINE.
- Circled numbers refer to waveforms.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safty. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- **Measuring conditions voltage value and waveform.**
(CAMERA block)
- The object is color bar chart of pattern box.
- Voltages are dc between ground and measurement points.
  Readings are taken with a digital multimeter (DC 10MΩ).
- Voltage variations may be noted due to normal production tolerances.

1. Connection


Pattern box
Front side of the lens
1.5m
Lens reference plane
surface Imaging surface
of CCD imager
(IC401 on CD-146 board)

2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

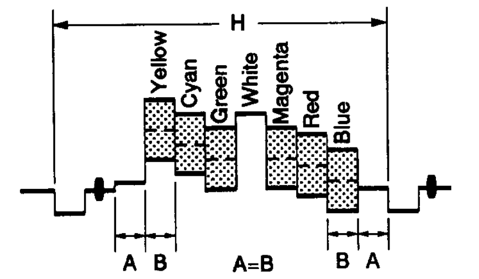

H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A B
A=B
B A

Fig. a (Video output terminal output waveform)

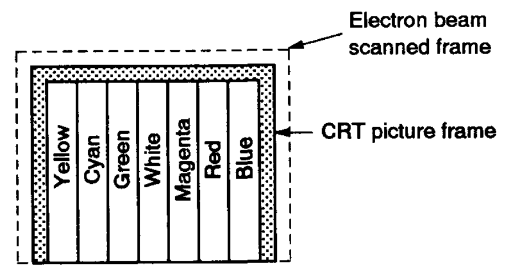

Electron beam
scanned frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue

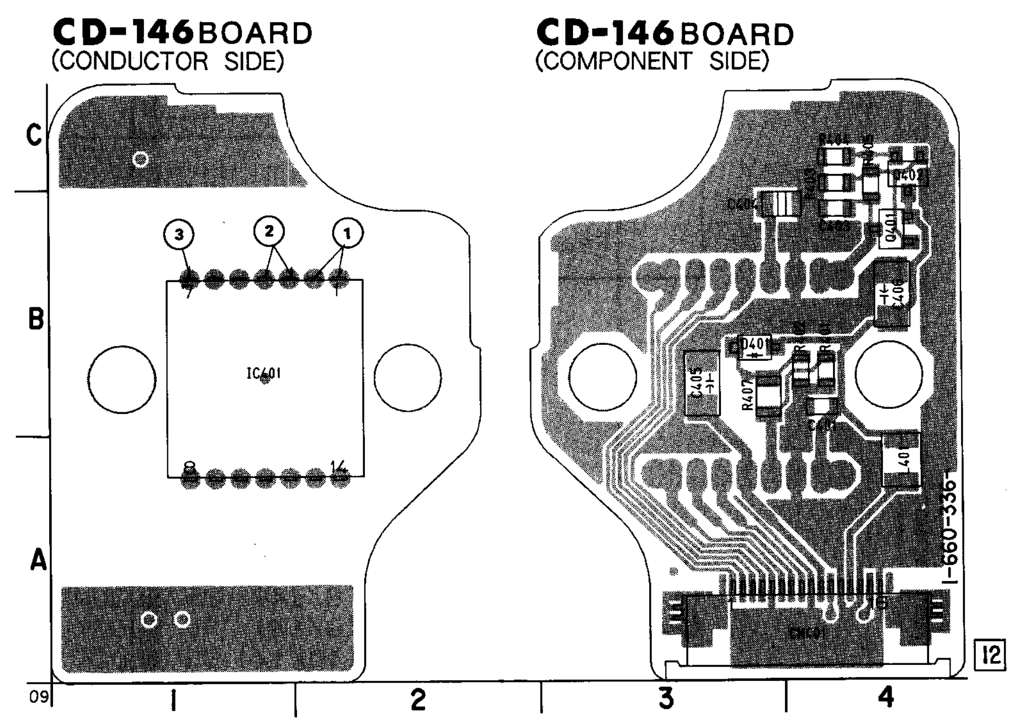
Fig. b (Picture on monitor TV)

(VIDEO, SERVO/SYSTEM CONTROL, MODE CONTROL, AUDIO, LCD CONTROL, EVF)

- Voltages are dc between ground and measurement points.
- Readings are taken with a color-bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

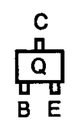
CD-146 (CCD IMAGER) PRINTED WIRING BOARD

— Ref No. CD-146 BOARD: 3,000 series —

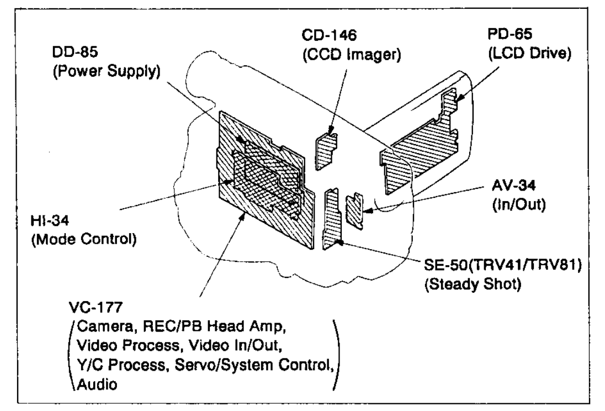

CD-146 BOARD
(CONDUCTOR SIDE)
CD-146 BOARD
(COMPONENT SIDE)
C
B
A
③
②
①
IC401
7
8
14
1
C404
R404
R403
Q402
C402
Q401
C407
D401
R407
C405
C401
L401
CN401
1-660-336-
15
12
09
1
2
3
4

CD-146 BOARD	
C401	B-4
C405	B-3
C406	B-4
CN401	A-4
IC401	B-1
L401	A-4
Q401	B-4
Q402	C-4
R403	C-4
R404	C-4
R407	B-3

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

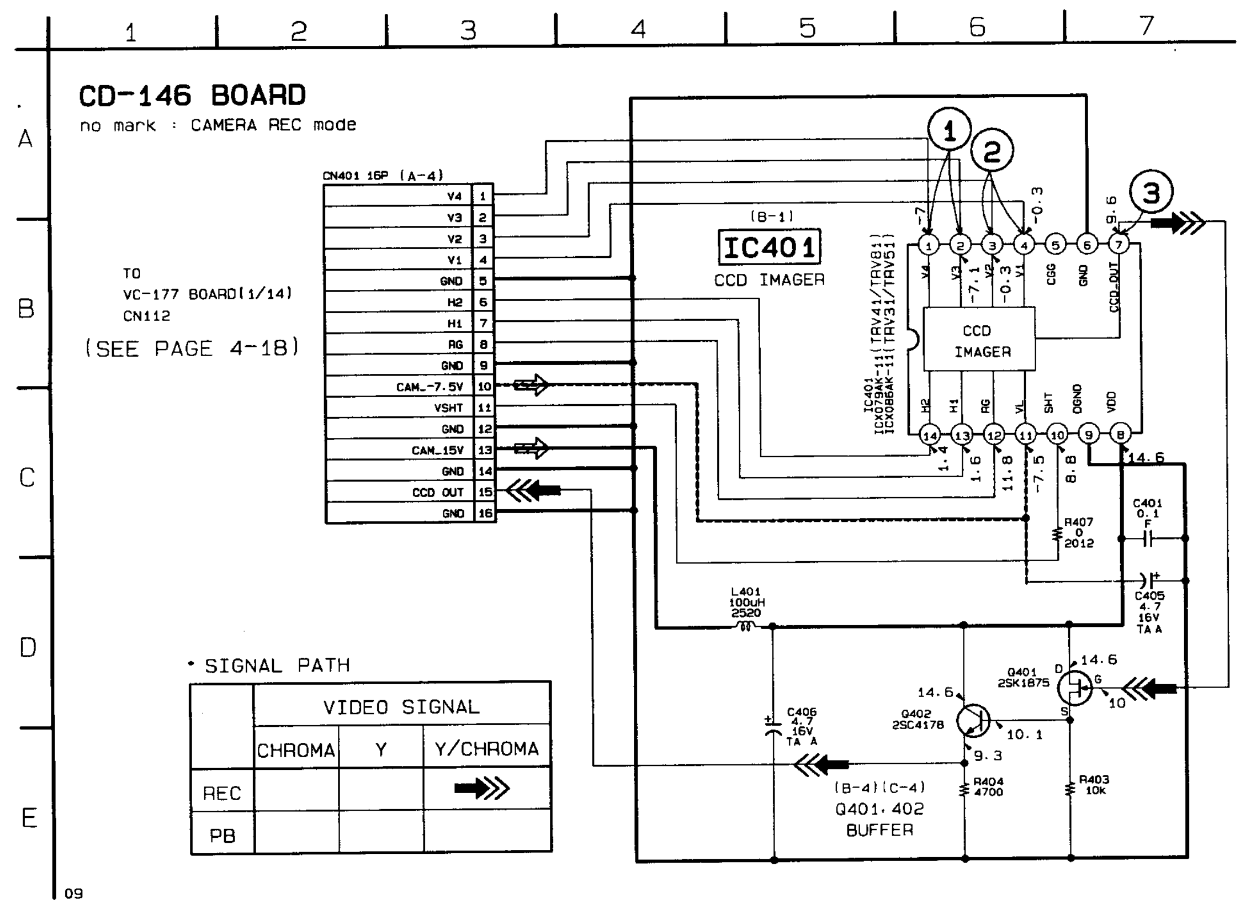


There are few cases that the part isn't mounted in this model is printed on this diagram.


DD-85
(Power Supply)
CD-146
(CCD Imager)
PD-65
(LCD Drive)
AV-34
(In/Out)
HI-34
(Mode Control)
SE-50(TRV41/TRV81)
(Steady Shot)
VC-177
(Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio)

CD-146 (CCD IMAGER) SCHEMATIC DIAGRAM

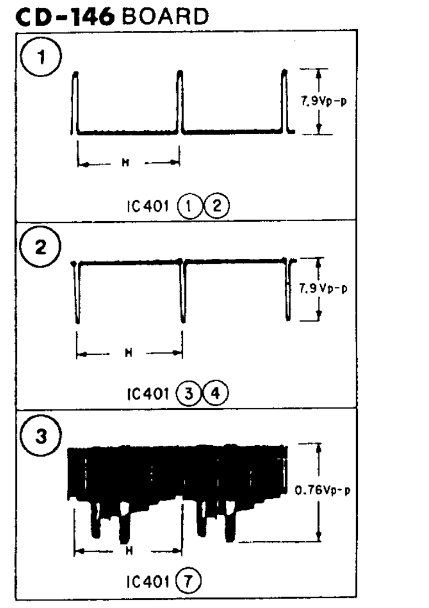
— Ref No. CD-146 BOARD: 3,000 series —


1
2
3
4
5
6
7
A
B
C
D
E
CD-146 BOARD
no mark : CAMERA REC mode
CN401 16P (A-4)
V4 1
V3 2
V2 3
V1 4
GND 5
H2 6
H1 7
RG 8
GND 9
CAM_-7.5V 10
VSHT 11
GND 12
CAM_15V 13
GND 14
CCD OUT 15
GND 16
TO
VC-177 BOARD(1/14)
CN112
(SEE PAGE 4-18)
(B-1)
IC401
CCD IMAGER
IC401
ICX079AK-11(TRV41/TRV81)
ICX086AK-11(TRV31/TRV51)
CCD
IMAGER
V4
V3
V2
V1
CGG
GND
CCD_OUT
H2
H1
RG
VL
SHT
OGND
VDD
①
②
③
-7
-7.1
-0.3
-0.3
9.6
1.4
1.6
11.8
-7.5
8.8
14.6
R407
0
2012
C401
0.1
F
C405
4.7
16V
TA A
L401
100uH
2520
C406
4.7
16V
TA A
Q401
2SK1875
Q402
2SC4178
14.6
10
10.1
9.3
R404
4700
R403
10k
(B-4)(C-4)
Q401, 402
BUFFER
09

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡
PB			

CD-146 BOARD

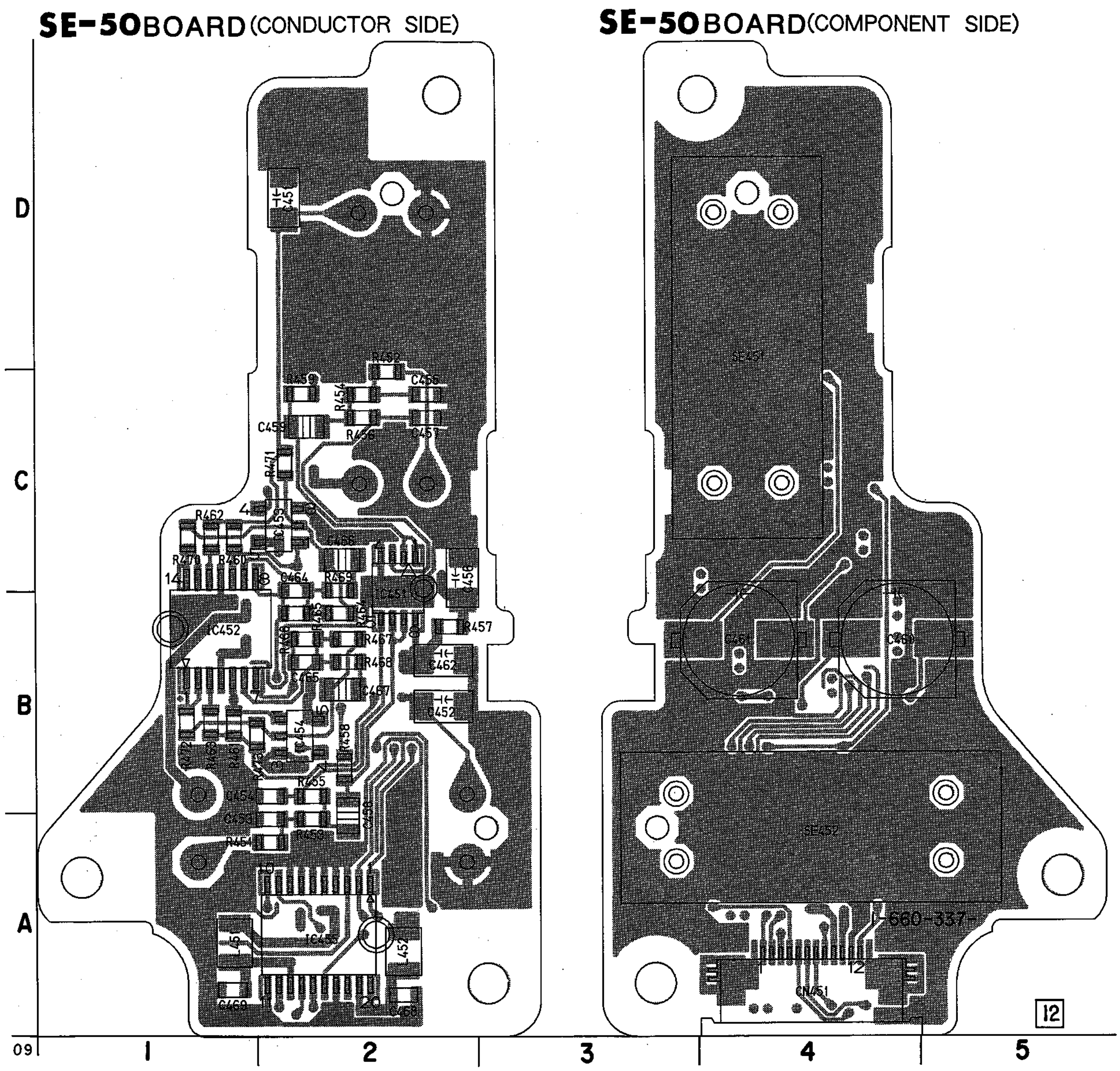


Note on the CCD Imager replacement

- The CCD imager is not mounted for the already mounted CD-146 board supplied as the repair parts.
  When replacing the CD-146 board, remove the CCD imager from the old board and install on the new board.
- Perform all adjustments of the camera block when the CCD imager has been replaced.
- Handle the CCD imager with attention such as MOS IC as it may be broken by static electricity in the structure.
  Also, prevent the receiving light section from dust attached and strong light.

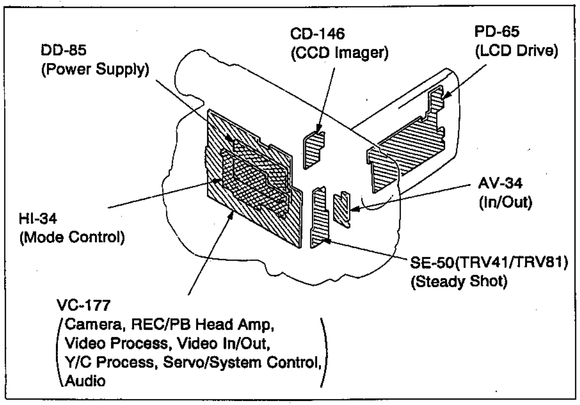
SE-50 (STEADY SHOT) PRINTED WIRING BOARD (CCD-TRV41/TRV81)

— Ref No. SE-50 BOARD: 3,000 series —



SE-50 BOARD (CONDUCTOR SIDE)
SE-50 BOARD (COMPONENT SIDE)
D
C
B
A
09
1
2
3
4
5
C451
R452
R453
R454
C456
C459
R456
C457
R471
R462
C453
R470
R460
C464
R459
IC451
C458
IC452
R457
R467
C462
R468
C455
C467
C452
R454
R458
R455
IC454
C460
R464
C468
L451
IC455
L452
C469
SE451
C461
C460
SE452
CN451
660-337-
12

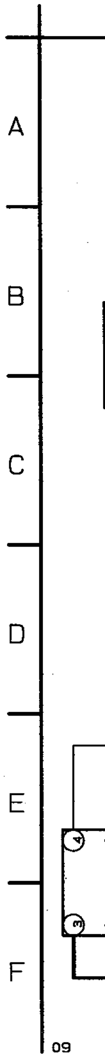
SE-50 BOARD	
C451	D-1
C452	B-2
C453	A-2
C454	B-2
C455	C-2
C456	C-2
C457	C-2
C458	A-2
C459	C-2
C460	B-4
C461	B-4
C462	B-2
C467	B-2
C468	A-2
C469	A-1
CN451	A-4
IC451	C-2
IC452	B-1
IC453	C-2
IC454	B-2
IC455	A-2
L451	A-1
L452	A-2
R451	A-2
R452	C-2
R453	A-2
R454	C-2
R455	B-2
R456	C-2
R457	B-2
R458	B-2
R459	C-2
R460	C-1
R461	B-1
R462	C-1
R463	B-1
R464	B-2
R465	B-2
R466	B-2
R467	B-2
R468	B-2
R470	C-1
R472	B-1
SE451	D-4
SE452	A-4



DD-85
(Power Supply)
CD-146
(CCD Imager)
PD-65
(LCD Drive)
AV-34
(In/Out)
HI-34
(Mode Control)
SE-50(TRV41/TRV81)
(Steady Shot)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio

SE-50 (S

— Ref No. S



SECTION 5
REPAIR PARTS LIST

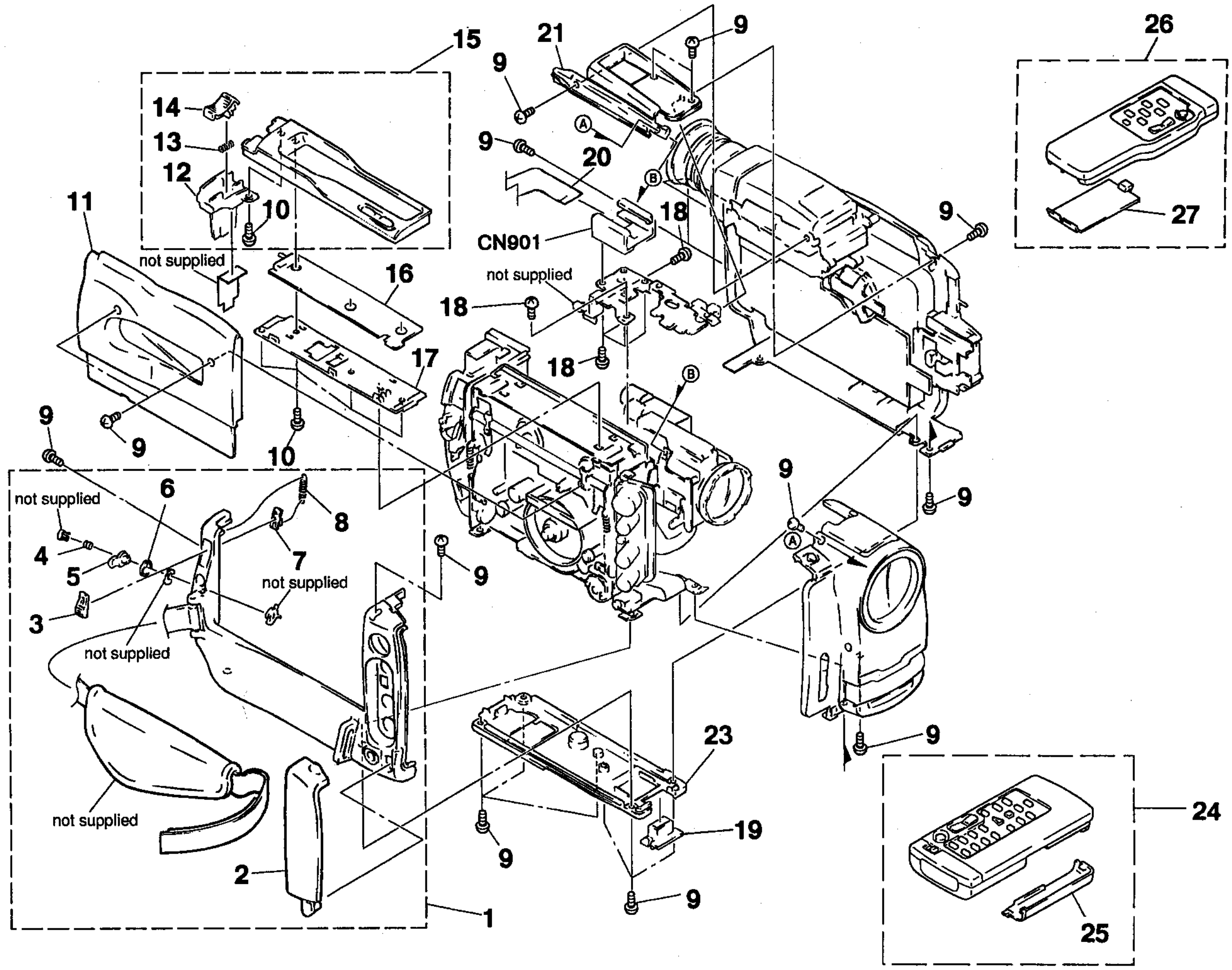
5-1. EXPLODED VIEWS

NOTE:
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.
- Canadian model is abbreviated as CND.
- Hong Kong model is abbreviated as HK.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

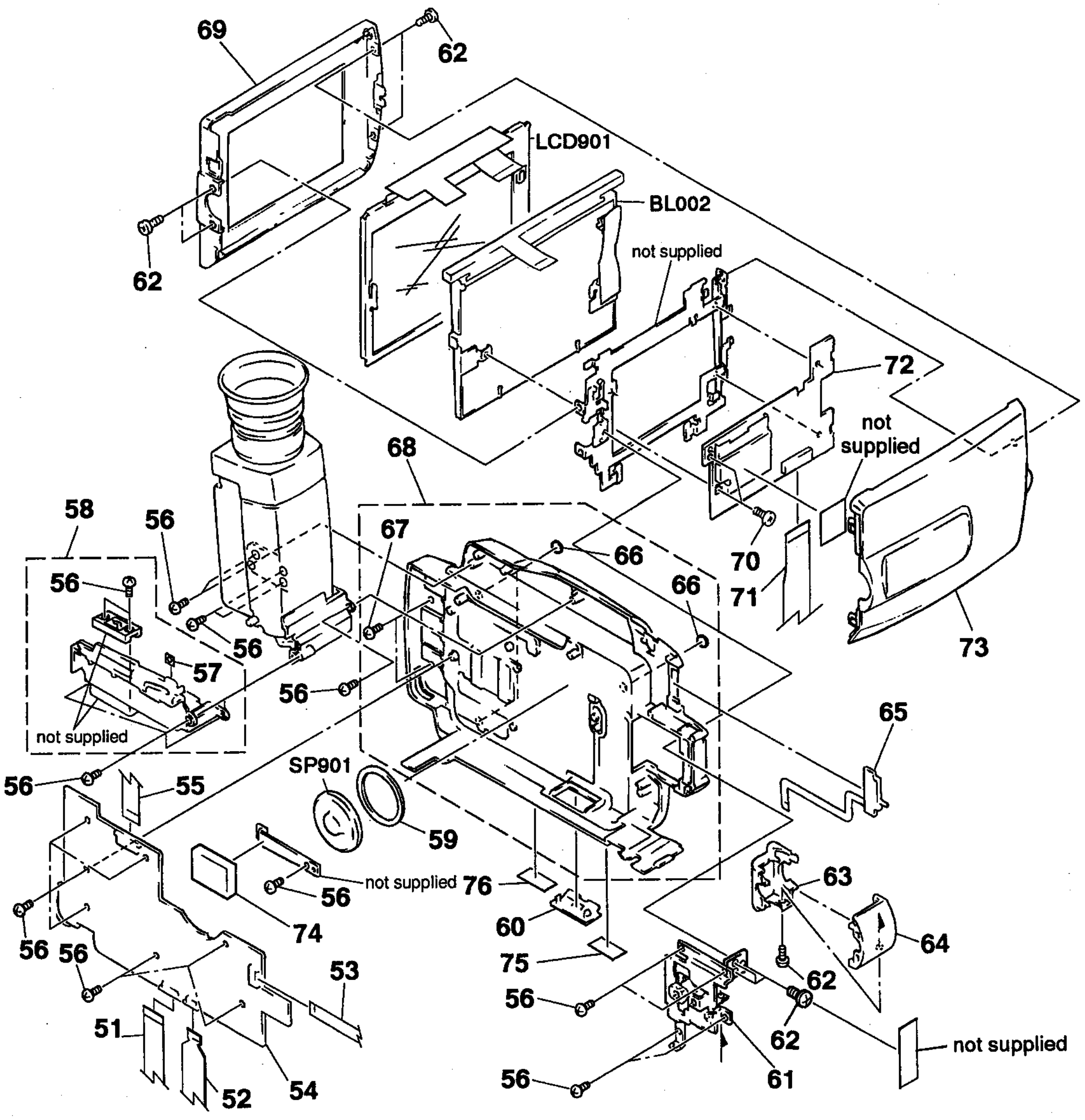
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

5-1-1. CABINET (L) BLOCK ASSEMBLY



Ref. No.	Part No.	Description	Remark
1	X-3946-098-1	CABINET (L) ASSY (TRV81)	
1	X-3946-160-1	CABINET (L) ASSY (TRV31)	
1	X-3946-191-1	CABINET (L) ASSY (SE)(TRV41/TRV51)	
2	3-969-080-01	COVER, JACK	
3	3-969-078-01	BUTTON, EJECT	
4	3-578-221-00	SPRING, COMPRESSION	
5	3-969-081-01	KNOB, STAND-BY	
6	3-736-364-01	SPRING	
7	3-969-079-01	LOCK, EJECT	
8	4-602-490-00	SPRING, TENSION	
9	3-968-729-01	SCREW (M2), LOCK ACE, P2	
10	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
11	X-3946-101-1	LID ASSY, CASSETTE (TRV81)	
11	X-3946-161-1	LID ASSY, CASSETTE (TRV31/TRV41/TRV51)	
12	3-969-090-01	BASE, ZOOM	
13	3-305-423-00	SPRING, COMPRESSION	
14	3-969-091-01	LEVER, ZOOM	
15	X-3946-162-1	LS (UPPER) ASSY	
* 16	A-7072-638-A	FK-65 (VSLPE) BOARD, COMPLETE	
17	3-969-166-01	LS (LOWER)	
18	3-713-786-21	SCREW (M2X3)	
19	3-969-178-01	LID (S), CPC	
20	1-660-280-11	FP-380 FLEXIBLE BOARD	
21	3-969-173-01	BASE, SHOE	
23	X-3946-159-1	BOTTOM ASSY, CABINET	
24	8-917-540-90	REMOCON RMT-715//M SET (TRV81)	
25	3-958-131-01	LID, BATTERY CASE (for RMT-715)(TRV81)	
26	1-467-574-21	REMOTE COMMANDER (RMT-708) (TRV31/TRV41/TRV51)	
27	3-958-131-01	LID, BATTERY CASE (for RMT-708) (TRV31/TRV41/TRV51)	
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P	

5-1-2. CABINET (R) AND 4" LCD BLOCK ASSEMBLY (TRV51/TRV81)


69
62
LCD901
BL002
not supplied
62
72
not supplied
68
58
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56
not supplied
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SP901
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not supplied
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74
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75
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51
not supplied
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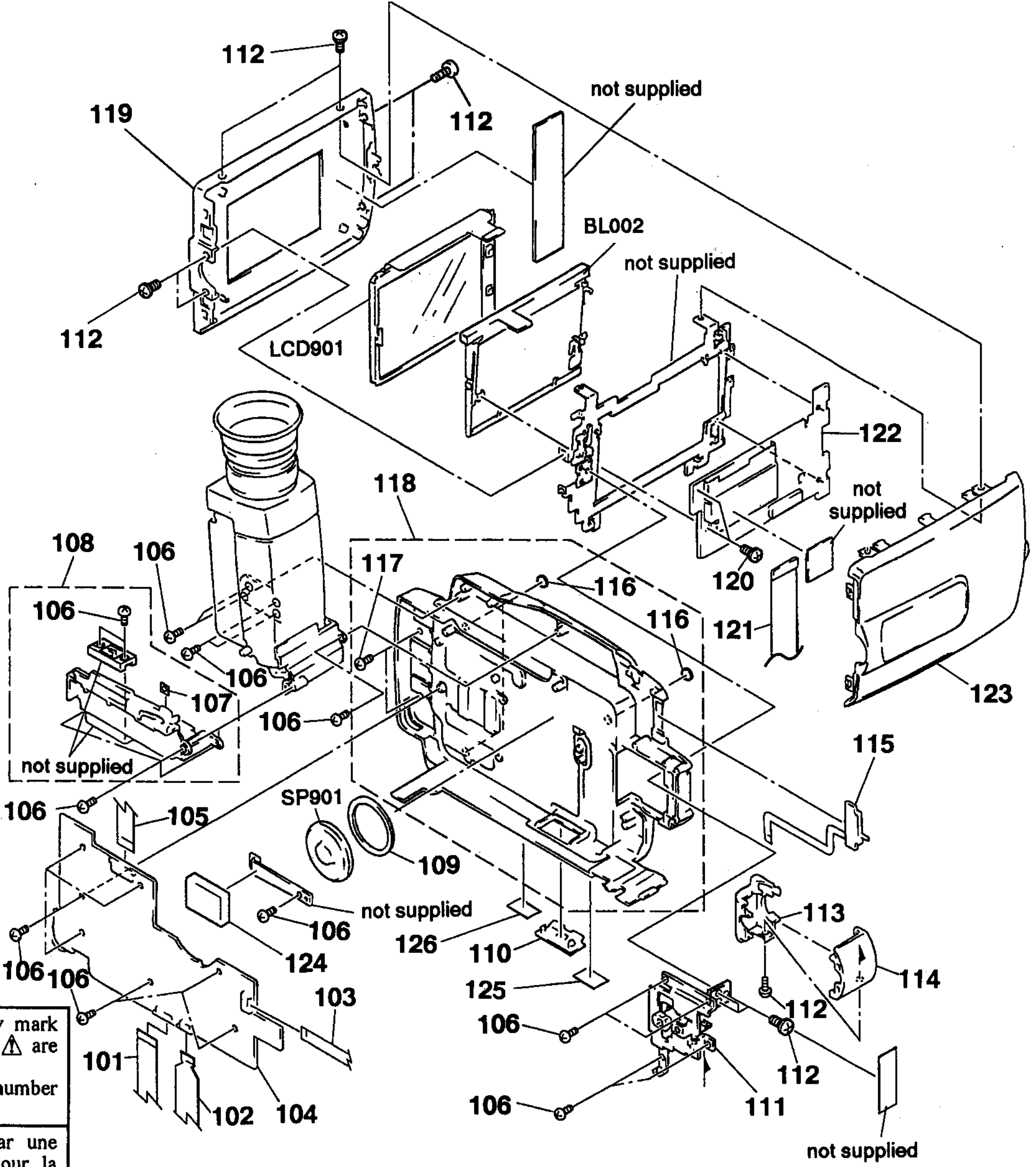
61

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
51	1-660-287-11	FP-388 FLEXIBLE BOARD	
52	1-660-289-11	FP-390 FLEXIBLE BOARD	
53	1-660-291-11	FP-393 FLEXIBLE BOARD	
* 54	A-7092-774-A	SD-20 (VH4C) BOARD, COMPLETE (TRV81)	
* 54	A-7092-797-A	SD-20 (VHL4) BOARD, COMPLETE (TRV51)	
55	1-660-284-11	FP-385 FLEXIBLE BOARD	
56	3-948-339-01	SCREW, TAPPING	
57	3-718-233-01	NUT, PLATE	
58	X-3945-979-1	VF BASE ASSY	
59	3-965-367-01	SPACER, SP	
60	3-969-179-01	LID (R), CPC	
61	X-3945-987-1	HINGE ASSY	
62	3-968-729-01	SCREW (M2), LOCK ACE, P2	
63	3-969-163-01	COVER (C), HINGE	
64	3-969-164-01	COVER (M), HINGE	
65	1-473-602-11	SWITCH BLOCK, CONTROL (PS-6500)	
66	3-959-978-02	CUSHION, PANEL (TRV81)	
67	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
68	X-3946-099-1	CABINET (R) ASSY (TRV81)	
68	X-3946-190-1	CABINET (R) ASSY (WE)(TRV51)	
69	X-3945-985-1	CABINET (M) ASSY, PANEL (TRV51/TRV81)	
70	3-713-786-21	SCREW (M2X3)	
71	1-660-290-11	FP-391 FLEXIBLE BOARD	
* 72	A-7092-775-A	PD-65 (VH4C) BOARD, COMPLETE (TRV51/TRV81)	
73	X-3946-105-1	CABINET (C) ASSY (HE), PANEL (TRV81)	
73	X-3946-158-1	CABINET (C) ASSY (E), PANEL (TRV51)	
* 74	3-970-753-01	CUSHION (A), FKS	
75	3-704-256-01	LABEL, CAUTION (TRV81:US)	
* 76	3-704-367-01	LABEL (TRV81:US)	
⚠BL002	1-517-526-11	TUBE, FLUORESCENT, COLD CATHODE (TRV51/TRV81)	
LCD901	1-801-149-21	DISPLAY MODULE, LIQUID CRYSTAL (TRV51/TRV81)	
SP901	1-504-753-21	SPEAKER (2.8CM)	

5-1-3. CABINET (R) AND 3" LCD BLOCK ASSEMBLY (TRV31/TRV41)


112
119
112
not supplied
112
BL002
not supplied
LCD901
122
not supplied
118
108
106
117
120
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116
121
123
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115
not supplied
106
105
SP901
109
not supplied
106
126
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113
124
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103
125
112
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112
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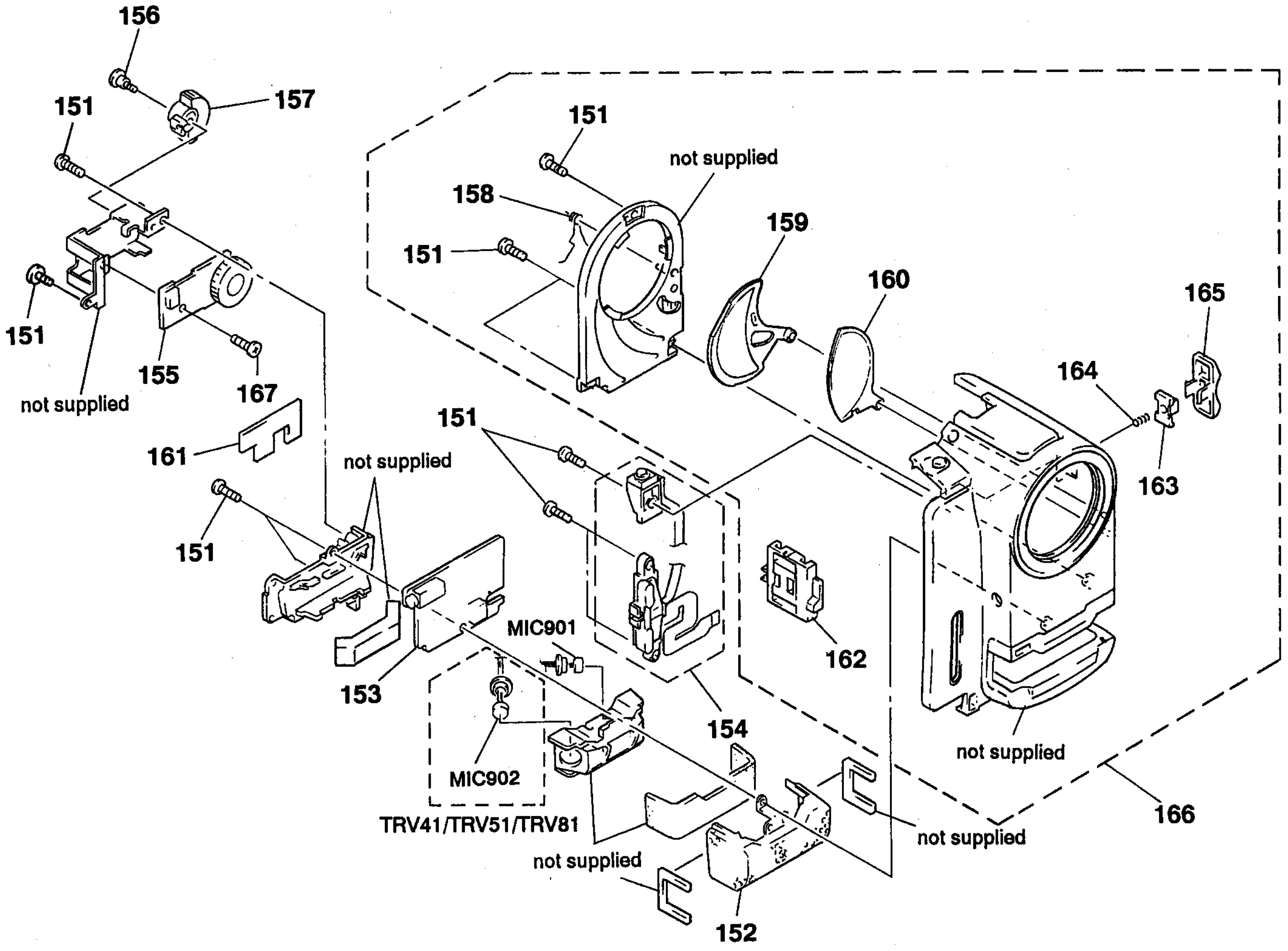
102
104
106
111
not supplied

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
101	1-660-287-11	FP-388 FLEXIBLE BOARD	
102	1-660-289-11	FP-390 FLEXIBLE BOARD	
103	1-660-291-11	FP-393 FLEXIBLE BOARD	
* 104	A-7092-774-A	SD-20 (VH4C) BOARD, COMPLETE (TRV41)	
* 104	A-7092-943-A	SD-20 (VSLE) BOARD, COMPLETE (TRV31)	
105	1-660-284-11	FP-385 FLEXIBLE BOARD	
106	3-948-339-01	SCREW, TAPPING	
107	3-718-233-01	NUT, PLATE	
108	X-3945-979-1	VF BASE ASSY	
109	3-965-367-01	SPACER, SP	
110	3-969-179-01	LID (R), CPC	
111	X-3945-987-1	HINGE ASSY	
112	3-968-729-01	SCREW (M2), LOCK ACE, P2	
113	3-969-163-01	COVER (C), HINGE	
114	3-969-164-01	COVER (M), HINGE	
115	1-473-602-11	SWITCH BLOCK, CONTROL (PS-6500)	
116	3-959-978-02	CUSHION, PANEL (TRV31/TRV41)	
117	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
118	X-3946-099-1	CABINET (R) ASSY (TRV41)	
118	X-3946-157-1	CABINET (R) ASSY (E)(TRV31)	
119	X-3946-156-1	CABINET (M) ASSY (S), PANEL(TRV31/TRV41)	
120	3-713-786-21	SCREW (M2X3)	
121	1-660-290-11	FP-391 FLEXIBLE BOARD	
* 122	A-7092-944-A	PD-65 (VSLE) BOARD, COMPLETE (TRV31/TRV41)	
123	X-3946-158-1	CABINET (C) ASSY (E), PANEL(TRV31/TRV41)	
* 124	3-970-753-01	CUSHION (A), FKS	
125	3-704-256-01	LABEL, CAUTION (TRV41:US)	
* 126	3-704-367-01	LABEL (TRV41:US)	
⚠BL002	1-517-525-11	TUBE, FLUORESCENT, COLD CATHODE (TRV31/TRV41)	
LCD901	1-801-148-21	DISPLAY MODULE, LIQUID CRYSTAL (TRV31/TRV41)	
SP901	1-504-753-21	SPEAKER (2.8CM)	

5-1-4. FRONT PANEL BLOCK ASSEMBLY



156
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not supplied
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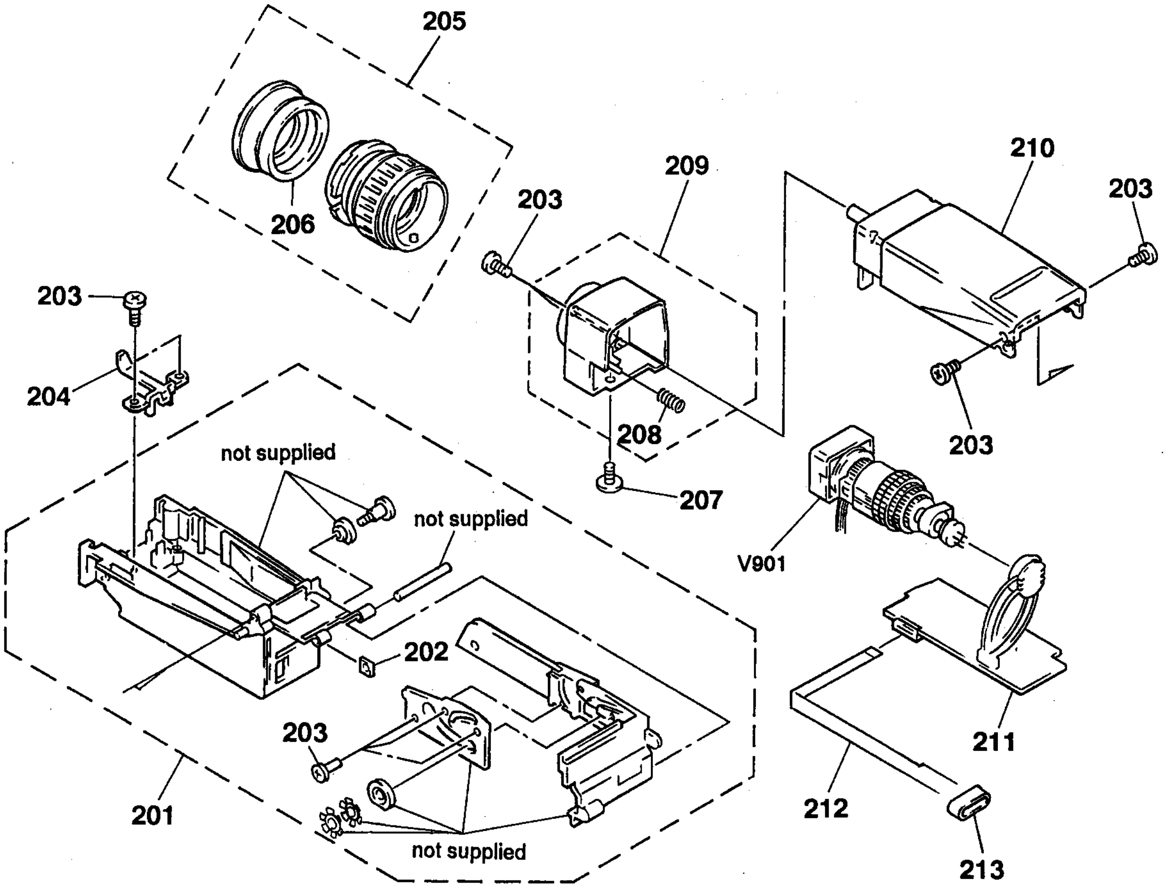
167
not supplied
164
163
161
151
not supplied
151
MIC901
162
153
154
MIC902
TRV41/TRV51/TRV81
not supplied
166
not supplied
not supplied
152

Ref. No.	Part No.	Description	Remark
151	3-948-339-01	SCREW, TAPPING	
152	3-969-169-01	GRILLE, MIC (TRV41/TRV51/TRV81)	
152	3-969-169-11	GRILLE, MIC (TRV31)	
* 153	A-7072-535-A	MA-262 (VH4C) BOARD, COMPLETE (TRV41/TRV51/TRV81)	
* 153	A-7072-640-A	MA-262 (VSLP) BOARD, COMPLETE (TRV31)	
154	1-473-601-11	SWITCH BLOCK, CONTROL (ZM-6500)	
* 155	A-7072-536-A	MF-292 (VH4C) BOARD, COMPLETE	
156	3-969-106-01	SCREW, SPECIAL HEAD	
157	3-969-171-01	KNOB, MF	
158	3-969-064-01	SPRING, L	
159	3-969-055-01	COVER (2), L	
160	3-969-054-01	COVER (1), L	
* 161	3-970-722-01	CUSHION (MA)	
162	3-969-060-01	RETAINER, POWER	
163	3-969-058-01	LOCK, POWER	
164	3-965-034-01	SPRING, COMPRESSION	
165	3-969-059-01	KNOB, POWER	
166	X-3946-163-1	PANEL ASSY (15N), F (TRV31)	
166	X-3946-187-1	PANEL ASSY (30SN), F(TRV41:US,CND/TRV81)	
166	X-3946-188-1	PANEL ASSY (60SN), F (TRV41:E,HK)	
166	X-3946-192-1	PANEL ASSY (60V), F (TRV51)	
167	3-713-786-21	SCREW (M2X3)	
MIC901	1-542-259-11	MICROPHONE, CAP (Lch or MONO)	
MIC902	1-542-259-11	MICROPHONE, CAP (Rch)(TRV41/TRV51/TRV81)	

5-1-5. EVF BLOCK ASSEMBLY



205
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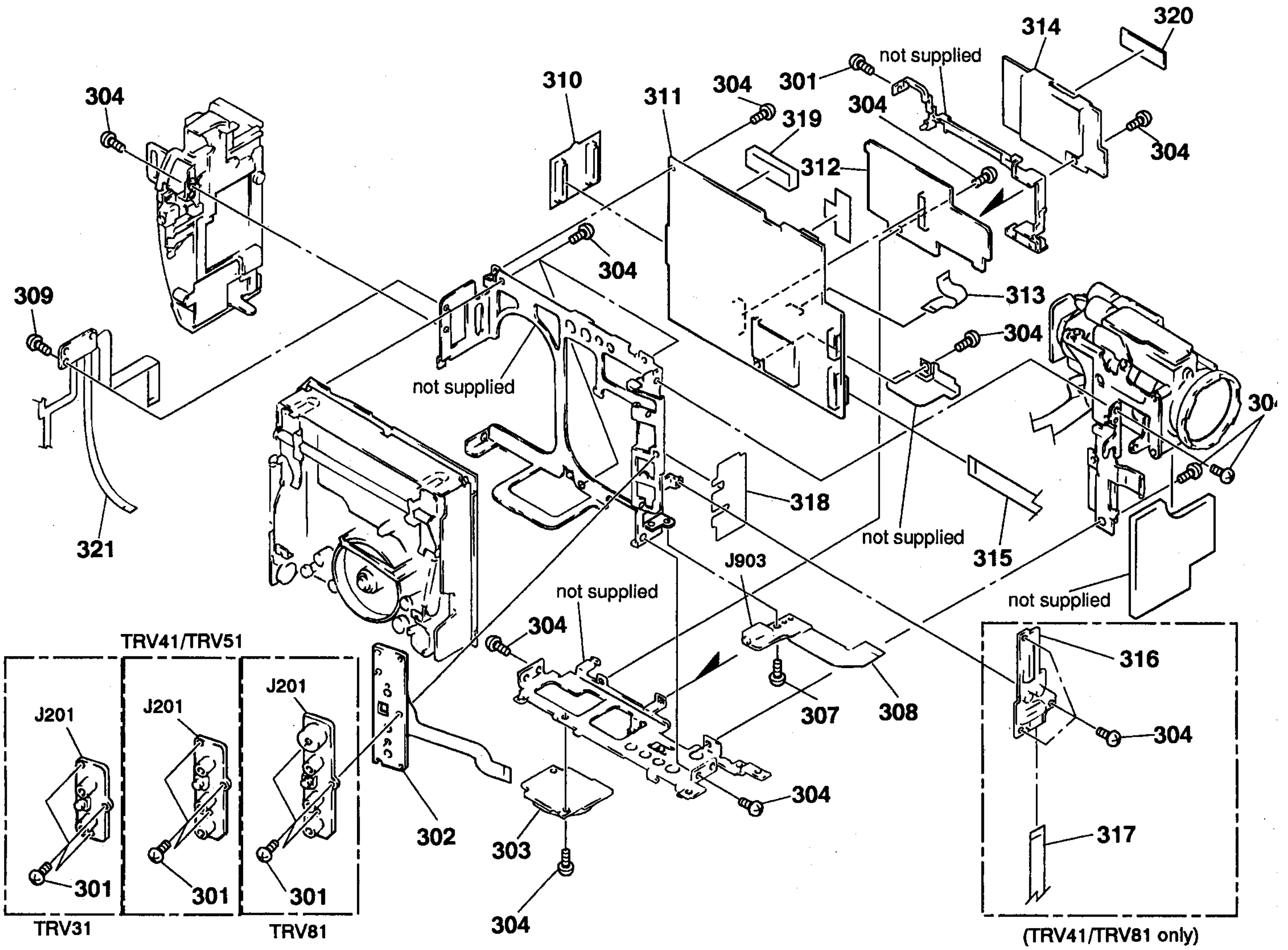
204
208
203
not supplied
207
not supplied
V901
202
203
211
201
212
not supplied
213

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
201	X-3946-102-1	CABINET (LOWER)(B) ASSY, EVF	
202	3-718-233-01	NUT, PLATE	
203	3-948-339-01	SCREW, TAPPING	
* 204	3-969-628-01	CHIP (B), TALLY	
205	X-3944-966-1	FINDER ASSY	
206	3-963-391-01	EYE CUP	
207	3-968-334-01	SCREW, F LOCK	
208	3-302-492-00	SPRING, COMPRESSION	
209	X-3946-104-1	CABINET (B) ASSY, EVF REAR	
210	X-3946-103-1	CABINET (UPPER (B)) ASSY, EVF	
211	A-7066-792-A	VF-99 (VHL4) BOARD, COMPLETE	
212	1-660-303-11	FP-395 FLEXIBLE BOARD	
213	1-500-227-11	BEAD, FERRITE	
⚠V901	1-452-673-31	CRT ASSY (M01KXX90WB)	

5-1-6. MAIN BOARDS ASSEMBLY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309
not supplied
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321
318
not supplied
315
J903
not supplied
not supplied
TRV41/TRV51
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316
J201
J201
J201
307
308
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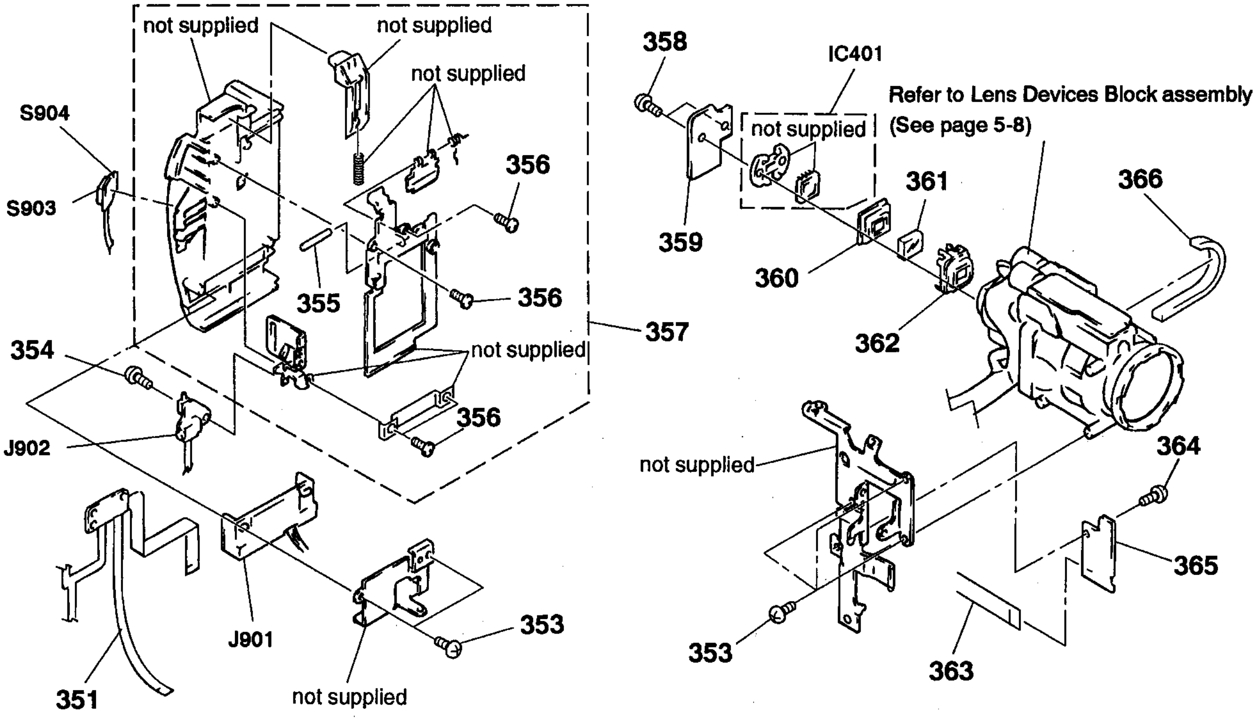
301
TRV31
TRV81
304
(TRV41/TRV81 only)

Ref. No.	Part No.	Description	Remark
301	3-968-729-01	SCREW (M2), LOCK ACE, P2	
302	1-660-278-11	FP-378 FLEXIBLE BOARD	
* 303	A-7072-531-A	LI-53 (VH4C) BOARD, COMPLETE	
304	3-713-786-21	SCREW (M2X3)	
307	3-724-455-01	SCREW (M2X4)	
308	1-660-279-11	FP-379 FLEXIBLE BOARD	
309	3-719-381-31	SCREW (M2X3)	
310	1-660-283-11	FP-383 FLEXIBLE BOARD	
* 311	A-7092-940-A	VC-177 (VH4) BOARD, COMPLETE (TRV81)	
* 311	A-7092-942-A	VC-177 (VSLE) BOARD, COMPLETE (TRV31)	
* 311	A-7092-945-A	VC-177 (VM) BOARD, COMPLETE (TRV41)	
* 311	A-7092-948-A	VC-177 (VL4E) BOARD, COMPLETE (TRV51)	
* 312	A-7092-911-A	HI-34 (VMPE) BOARD, COMPLETE (TRV41)	
* 312	A-7092-949-A	HI-34 (VL4E) BOARD, COMPLETE (TRV51)	
* 312	A-7092-796-A	HI-34 (VHL4) BOARD, COMPLETE (TRV81)	
* 312	A-7092-833-A	HI-34 (VSLP) BOARD, COMPLETE (TRV31)	
313	1-660-286-11	FP-387 FLEXIBLE BOARD	
* 314	A-7092-941-A	DD-85 (VH4) BOARD, COMPLETE	
315	1-660-281-11	FP-381 FLEXIBLE BOARD	
* 316	A-7072-532-A	SE-50 (VH4C) BOARD, COMPLETE	(TRV41/TRV81)
317	1-660-277-11	FP-377 FLEXIBLE BOARD (TRV41/TRV81)	
* 318	3-970-724-01	MN SHEET	
* 319	3-970-754-01	CUSHION (B), FKS	
* 320	3-970-755-01	TAPE, FKS	
321	1-660-288-11	FP-389 FLEXIBLE BOARD	
J201	1-537-747-21	TERMINAL BOARD (TRV81)	
J201	1-537-747-31	TERMINAL BOARD (TRV41/TRV51)	
J201	1-537-747-41	TERMINAL BOARD (TRV31)	
J903	1-695-514-11	JACK (SMALL TYPE) 1P (EARPHONE)(TRV31)	
J903	1-695-514-21	JACK (SMALL TYPE) 1P (HEADPHONE)	(TRV41/TRV51/TRV81)

5-1-7. BATTERY PANEL BLOCK ASSEMBLY AND CCD BLOCK ASSEMBLY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S904
S903
356
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not supplied
J902
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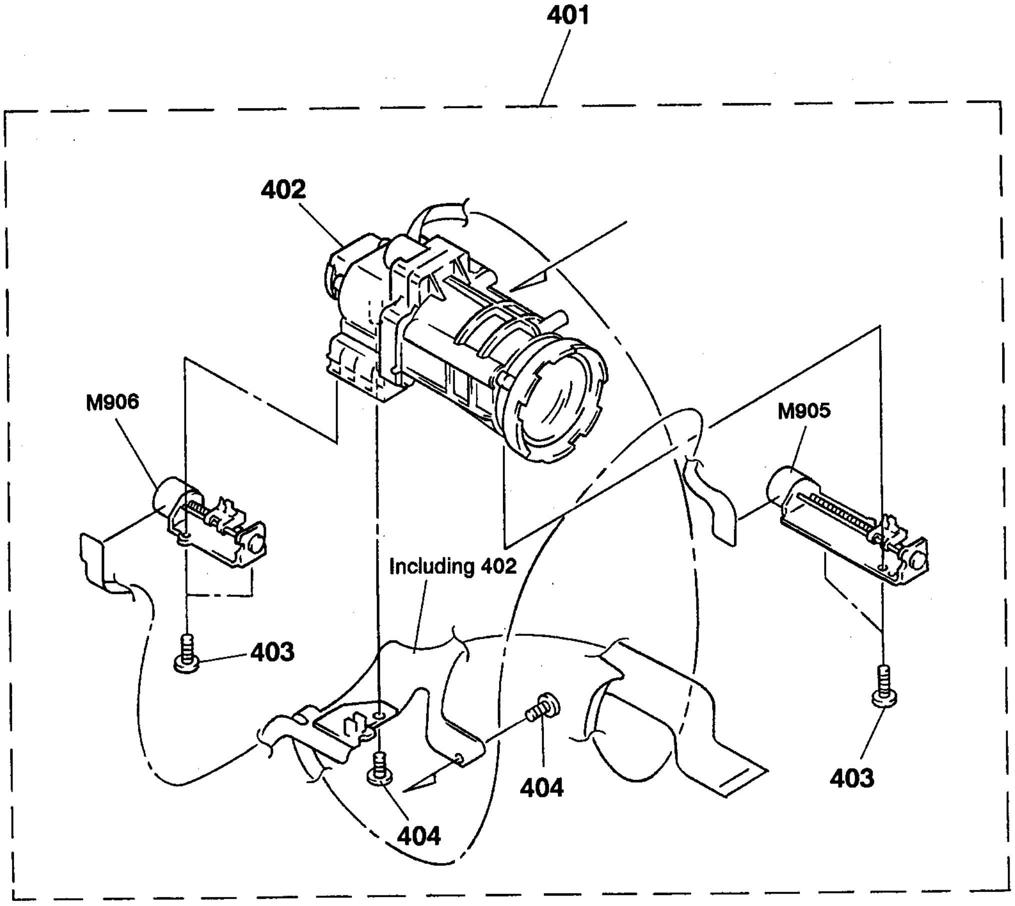
J901
353
351
not supplied
358
IC401
Refer to Lens Devices Block assembly
(See page 5-8)
not supplied
361
366
359
360
362
not supplied
364
365
353
363

Be sure to read "Note on the CCD Imager replacement" on page 4–8 when changing the CCD imager.

Ref. No.	Part No.	Description	Remark
351	1-660-288-11	FP-389 FLEXIBLE BOARD	
353	3-948-339-01	SCREW, TAPPING	
354	3-719-381-31	SCREW (M2X3)	
355	3-576-082-00	PIN, PARALLEL	
356	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	
357	X-3945-974-1	PANEL ASSY, BATTERY	
358	3-318-203-11	SCREW (B1.7X6), TAPPING	
* 359	A-7072-527-A	CD-146 (VH4C) BOARD, COMPLETE	
360	3-961-192-11	RUBBER (FH), SEAL (TRV41/TRV81)	
360	3-968-054-11	RUBBER (FM), SEAL (TRV31/TRV51)	
361	1-547-787-61	FILTER BLOCK, OPTICAL (TRV41/TRV81)	
361	1-547-924-11	FILTER BLOCK, OPTICAL (TRV31/TRV51)	
362	3-963-467-11	ADAPTOR (FH), CCD FITTING	
363	1-660-531-11	FP-429 FLEXIBLE BOARD	
364	3-713-786-21	SCREW (M2X3)	
* 365	A-7072-533-A	AV-34 (VH4C) BOARD, COMPLETE (TRV81)	
* 365	A-7072-730-A	AV-34 (VMPE) BOARD, COMPLETE (TRV41/TRV51)	
* 365	A-7072-802-A	AV-34 (VSLE) BOARD, COMPLETE (TRV31)	
* 366	3-970-721-01	CUSHION, LENS	
IC401	A-7030-638-A	CCD BLOCK ASSY (079 SERVICE)(CCD IMAGER) (TRV41/TRV81)	
IC401	A-7030-718-A	CCD BLOCK ASSY (086 SERVICE)(CCD IMAGER) (TRV31/TRV51)	
J901	1-694-076-11	TERMINAL BOARD, BATTERY	
J902	1-565-276-21	JACK, ULTRA SMALL 1P (LANC)	
S903	1-571-315-11	SWITCH, KEY BOARD (START/STOP)	
S904	1-553-977-00	SWITCH, SLIDE (STANDBY/LOCK)	

5-1-8. LENS DEVICE (LSV-510A/J-N) BLOCK ASSEMBLY


401
402
M906
M905
Including 402
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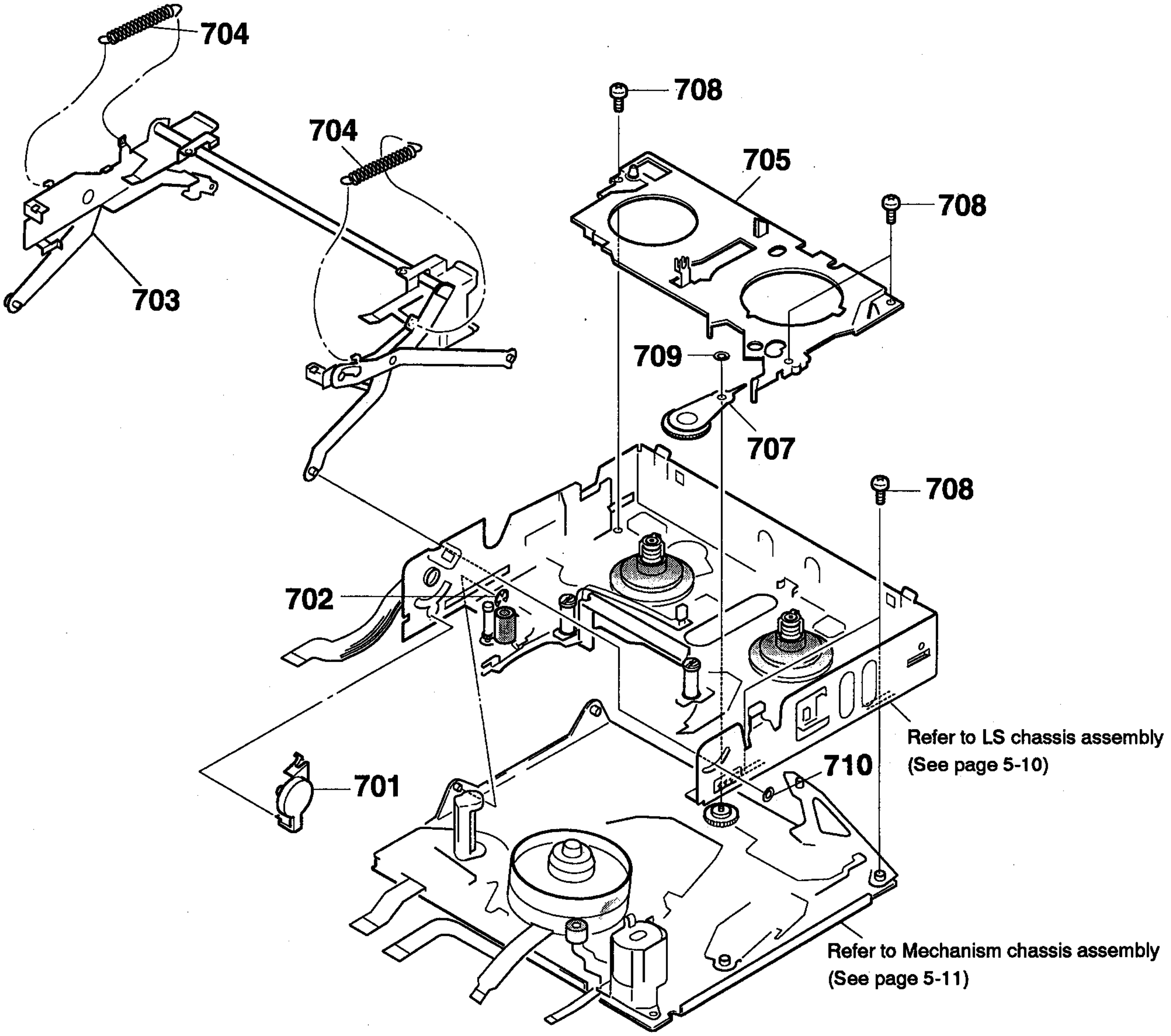
404

Ref. No.	Part No.	Description	Remark
401	8-848-710-01	DEVICE, LENS LSV-510A/J-N	
402	A-4910-808-A	DEVICE ASSY, LSV-510A (RP)	
403	3-713-791-41	SCREW (M1.7X5), TAPPING, P2	
404	3-708-302-01	SCREW (BT3 P1.7X4C)	
M905	1-698-760-01	MOTOR, STEPPING (FOCUS)	
M906	1-698-759-01	MOTOR, STEPPING (ZOOM)	

5-1-9. CASSETTE COMPARTMENT ASSEMBLY


704
708
704
705
708
703
709
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708
702
Refer to LS chassis assembly
(See page 5-10)
710
701
Refer to Mechanism chassis assembly
(See page 5-11)

Ref.No.	Part No.	Description	Remark
701	A-7040-421-A	DAMPER ASSY	
702	7-624-102-04	STOP RING 1.5, TYPE -E	
703	X-3945-400-1	CASSETTE COMPARTMENT ASSY	
704	3-965-587-01	SPRING, TENSION	
705	3-965-584-01	RETAINER, GOOSENECK	
707	X-3945-399-1	GEAR ASSY, GOOSENECK	
708	3-947-503-01	SCREW (M1.4X2.5)	
709	3-331-007-21	WASHER	
710	3-727-176-01	WASHER, STOPPER	

SECTION 6
ADJUSTMENTS

6-1. CAMERA SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6–34.

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Adjusting driver
- Color monitor
- Regulated power supply
- Vectorscope
- Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.3	J-6080-818-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjusting remote commander (RM-95-remodeled partly)Note 1	J-6082-053-B	
J-6	Siemens star	J-6080-875-A	For checking the flange back
J-7	Multi CPC jig	J-6082-311-A	For adjusting LCD block
J-8	CPC-5 jig	J-6082-351-A	For the color viewfinder adjustment For adjusting the video section
J-9	Power code	J-6082-233-A	For connecting the battery terminal and DC power supply
J-10	AFM DEV jig	J-6082-312-A	For adjusting the deviation
J-11	Extension cable (60P, 0.5 mm)	J-6080-356-A	For extension between the HI-34 board (CN501) and VC-177 board (CN110)
J-12	Clear chart	J-6080-621-A	
J-13	Extension cable (16P, 0.5 mm)	J-6082-357-A	For extension between the CD-146 board (CN112) and VC-177 board (CN112)

Note 1: If the micro processor IC in the adjusting remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

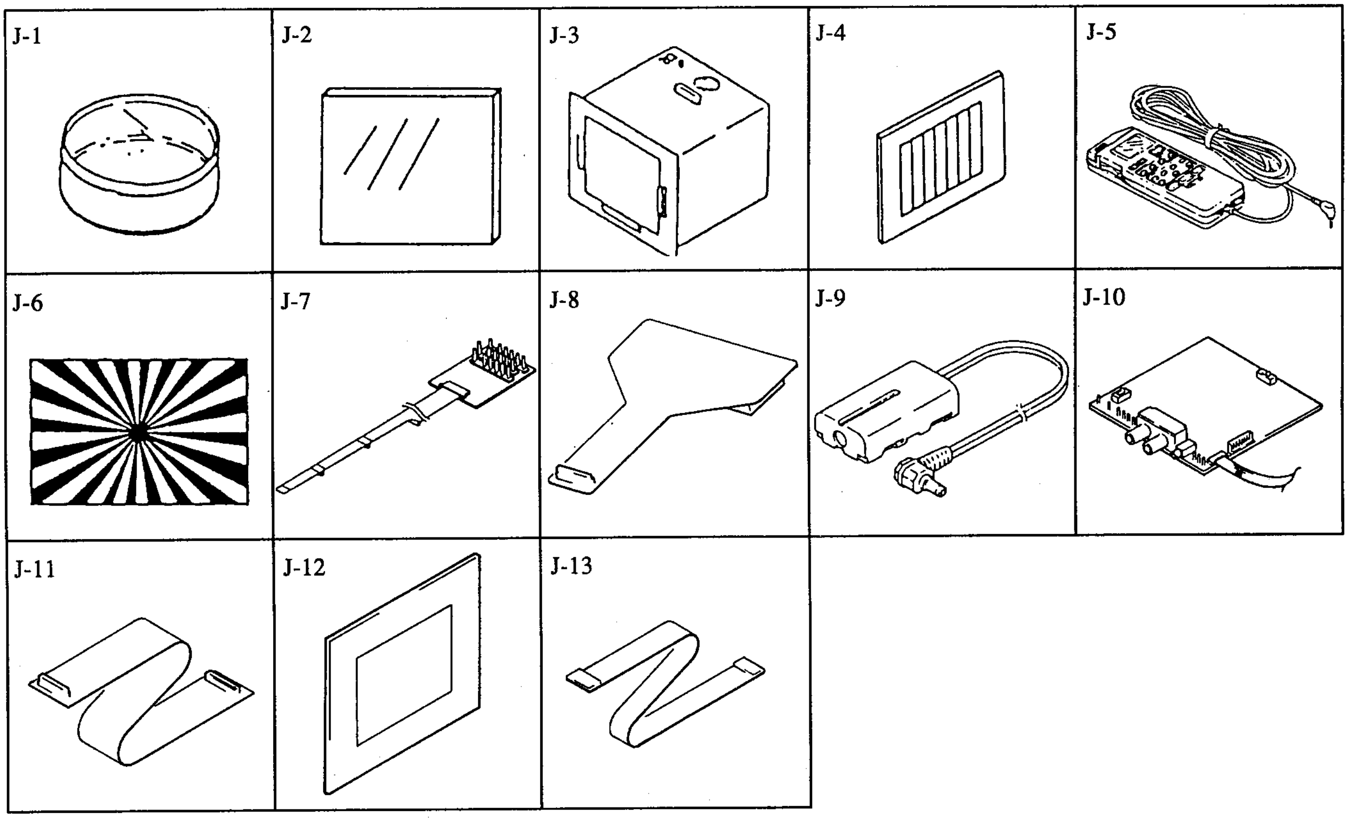

J-1
J-2
J-3
J-4
J-5
J-6
J-7
J-8
J-9
J-10
J-11
J-12
J-13

Fig. 6-1-1.

1-1-2. Preparations

Note 1: Refer to "Section 2 DISASSEMBLY" for details of how to remove the cabinet and boards.

Note 2: If performing only adjustments, the lens block and VC-177 board need not be adjusted.

1) Connect the adjusting equipment according to Fig. 6-1-3.
2) The front panel MF-292 board is required for focus operations. Connect and adjust it.
3) By setting the "forced camera power ON mode", the camera power supply can be turned on even if the camera power supply (R) (power switch, SD-20 board) has been removed. However, focus operations cannot be performed. Disconnect the following connectors when removing the cabinet (R).
   1. CN201 of VC-177 board (18P, 0.5 mm)
   2. CN111 of VC-177 board (20P. 0.5 mm)
   3. CN1502 of DD-85 board (10P, 0.5 mm)
   4. CN502 of HI-34 board (24P, 0.5 mm)

After the adjustments, be sure to exit the "forced camera power supply ON mode".

Note 3: Setting the "forced camera power supply ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.

The camera power supply can be turned ON even if the cabinet (R) has been removed using the above steps. After completing adjustments, be sure to exit the "forced power supply ON mode".

Note 4: Exiting the "forced camera ON mode"
1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 1, address: 01.

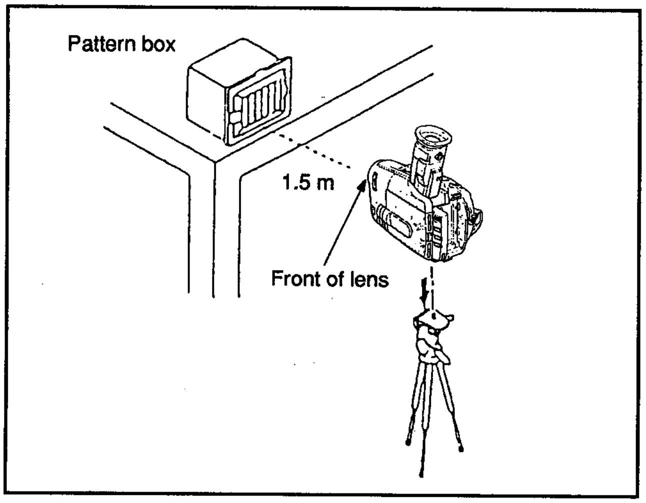


Fig. 6-1-2.

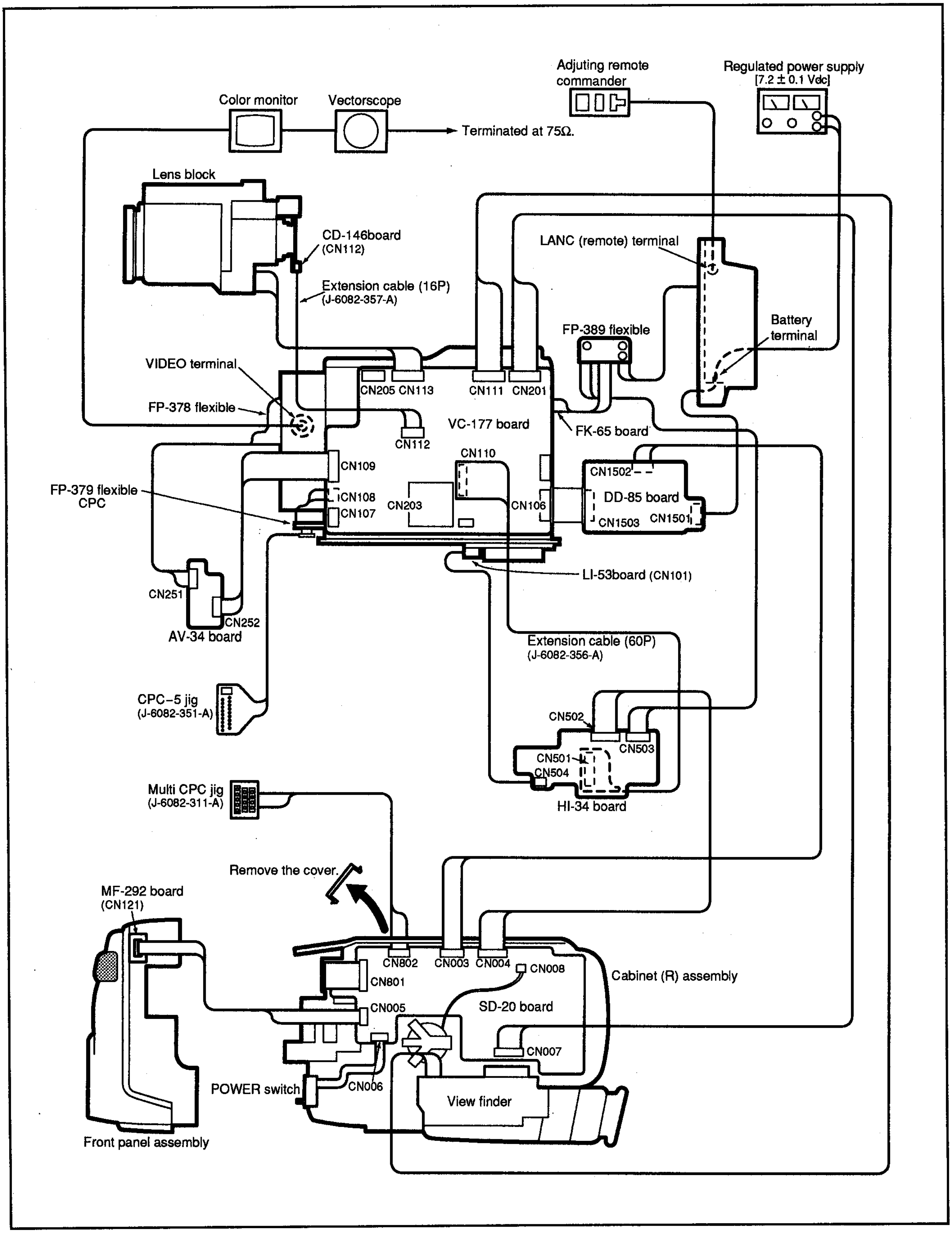

Adjuting remote commander
Regulated power supply [7.2 ± 0.1 Vdc]
Color monitor
Vectorscope
Terminated at 75Ω.
Lens block
CD-146board (CN112)
Extension cable (16P) (J-6082-357-A)
LANC (remote) terminal
Battery terminal
FP-389 flexible
VIDEO terminal
FP-378 flexible
CN205 CN113
CN111 CN201
VC-177 board
CN112
FK-65 board
CN110
CN109
FP-379 flexible CPC
CN108
CN107
CN203
CN106
CN1502
DD-85 board
CN1503 CN1501
LI-53board (CN101)
CN251
CN252
AV-34 board
Extension cable (60P) (J-6082-356-A)
CPC-5 jig (J-6082-351-A)
CN502
CN503
CN501
CN504
HI-34 board
Multi CPC jig (J-6082-311-A)
Remove the cover.
MF-292 board (CN121)
CN802 CN003 CN004
CN008
Cabinet (R) assembly
CN801
CN005
SD-20 board
CN007
POWER switch
CN006
View finder
Front panel assembly

Fig. 6-1-3.

1-1-3. Precautions

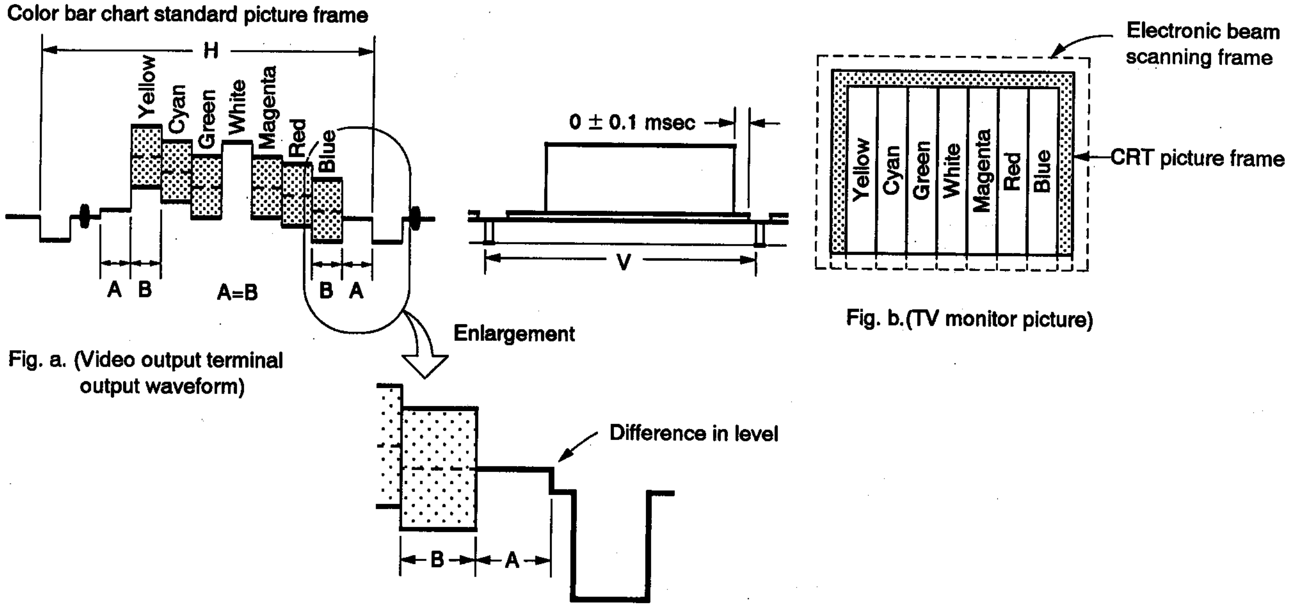
1. Switch settings

Adjust the switches to the following positions, and adjust without loading the cassette tape, unless specified otherwise.

1. Camera/VTR power switch (PS block) .... Camera
2. Digital zoom switch (Menu display) .... Off
3. Steady shot switch (S023 on SD-20 board) .... Off
   (TRV41/TRV81 model)
4. Focus switch (S121 on MF-292 board) .... Manual
5. Back light switch (S014 on SD-20 board) .... Auto lock
6. 16:9 WIDE button (S017 on SD-20 board) .... Off
   (TRV41/TRV51/TRV81 model)
7. Picture effect button (S003 on SD-20 board) .... Off

2. Adjusting Procedure

Adjust in the given order.



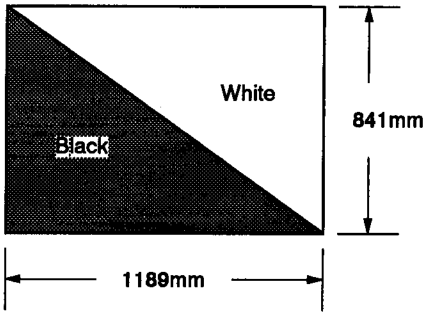
Color bar chart standard picture frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A
Fig. a. (Video output terminal output waveform)
0 ± 0.1 msec
V
Enlargement
B
A
Difference in level
Electronic beam scanning frame
CRT picture frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
Fig. b.(TV monitor picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the TV monitor display shown in Fig. b.

Fig. 6-1-4.

3. Subject

1) Color bar chart (Standard picture frame)
   Adjust the picture frame as shown in Fig. 6-1-4. if adjustments are performed using the color bar chart. (Standard picture frame)
2) White pattern (Standard picture frame)
   Remove the color bar chart from the pattern box, and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Chart for flange back adjustment
   Combine a white A0 size (1189 mm x 841 mm) paper to a black one, and make the chart shown in Fig. 6-1-5.



White
Black
841mm
1189mm

Fig. 6-1-5.

Note: Use the non-reflecting and non-glazing vellum paper whose size is more than A0, and make the boundary between white and black to be smoothly flat.

1-1-4. Adjusting Remote Commander

The adjusting remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjusting remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the adjusting remote commander

1) Connect the adjusting remote commander to the remote terminal.
2) Adjust the HOLD switch of the adjusting remote commander to "HOLD" (SERVICE position).

If it has been properly connected, the LCD on the adjusting remote commander will display as shown in Fig. 6-1-6.

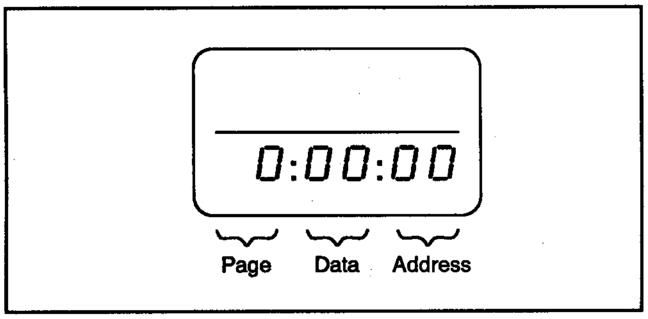


Fig. 6-1-6.

3) Operate the adjusting remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 6-1-1.

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▷) button is pressed, and decreases when the STOP (■) button is pressed.
     There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (F page) in the nonvolatile memory. (The new adjustment data will not be recorded in the nonvolatile memory if this step is not performed.)
4) Select page: 0, address: 01, and set the data to 01, and enables Page D and E, F to be adjusted.
5) After completing all adjustments, set data: 00 to page: 0, address: 01 and turn off the main power supply (7.2V) once.

2. Precautions upon using the adjusting remote commander

Mishandling of the adjusting remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

1-1-5. Page F Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page F, Page E Data Initialization" and "Page F Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Note 3: ( ): US, Canadian model
[ ]: E, Hong Kong, Tourist model

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
00	A5	B3	A7	AB	
01					
02	(03)[04]	(03)[04]	(03)[04]	(03)[04]	
03					
04					
05	B4	E9	B4	E9	
06	B8	B8	B8	B8	
07	5E	5E	5E	5E	
08	49	2C	49	2C	
09	59	3A	59	3A	
0A	6B	49	6B	49	
0B	8D	64	8D	64	
0C					
0D					
0E					
0F					
10	00	00	00	00	
11	00	00	00	00	
12	00	00	00	00	
13	00	00	00	00	
14	00	00	00	00	
15	00	00	00	00	
16	00	00	00	00	
17	00	00	00	00	
18	00	00	00	00	
19	00	00	00	00	
1A	00	00	00	00	
1B	00	00	00	00	
1C	56	50	56	00	←
1D	00	00	00	00	←
1E	21	21	21	21	←
1F	12	12	12	12	←
20	00	00	00	00	←
21	00	00	00	00	←
22	3B	3B	3B	3B	
23	00	00	00	00	←

Table 6-1-2 (1).

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
24	7C	7C	7C	7C	←
25	80	80	80	80	←
26	1F	1F	1F	1F	←
27	(40)[41]	(40)[41]	(40)[41]	(40)[41]	←
28	46	44	44	60	←
29	00	00	00	00	
2A	FE	FE	FE	FE	
2B	3B	3B	3B	3B	
2C	77	77	77	77	
2D	56	56	56	56	
2E	A6	A6	A6	A6	
2F	1A	1A	1A	1A	
30	15	15	15	15	
31	24	24	24	24	
32	8C	8C	8C	8C	
33	11	11	11	11	
34	00	00	00	00	
35	00	00	00	00	
36	00	00	00	00	
37	0A	0A	0A	0A	
38	15	15	15	15	
39	81	81	81	81	
3A	A0	A0	A0	A0	
3B	80	80	80	80	
3C	80	80	80	80	
3D	30	30	30	30	
3E	1B	1B	1B	1B	
3F	1B	1B	1B	1B	
40	AE	AE	AE	AE	
41	42	42	42	42	
42	44	44	44	44	
43	34	34	34	34	
44	2A	2A	2A	2A	
45	89	89	89	89	
46	59	59	59	59	
47	38	38	38	38	
48	41	41	41	41	
49	25	25	25	25	
4A	00	00	00	00	
4B	19	19	19	19	
4C	00	00	00	00	
4D	16	16	16	16	
4E	00	00	00	00	
4F	36	36	36	36	

Table 6-1-2 (2).

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
50	7B	7B	7B	7B	
51	9D	9D	9D	9D	
52	80	80	80	80	
53	80	80	80	80	
54	00	00	00	00	←
55	00	00	00	00	←
56	00	00	00	00	←
57	00	00	00	00	←
58	00	00	00	00	←
59	CA	CA	CA	CA	
5A	D9	D9	D9	D9	
5B	DA	DA	DA	DA	
5C	3C	3C	3C	3C	
5D	00	00	00	00	←
5E	7A	7A	7A	7A	
5F	8D	8D	8D	8D	
60	7A	7A	7A	7A	
61	3A	3A	3A	2F	←
62	B0	B0	B0	B0	
63	00	00	00	00	
64	AA	AA	AA	AA	
65	30	30	30	30	←
66	60	60	60	60	
67	7C	7C	7C	7C	
68	30	30	30	30	←
69	40	40	40	40	←
6A	28	28	28	28	←
6B	00	00	00	00	←
6C	6A	6A	6A	6A	←
6D	15	15	15	15	←
6E	47	47	47	47	←
6F	15	15	15	15	←
70	70	70	70	70	
71	70	70	70	70	
72	70	70	70	70	
73	70	70	70	70	
74	79	80	80	80	
75	87	80	80	80	
76	B8	B8	B8	B8	
77	B8	B8	B8	B8	
78	B8	B8	B8	B8	
79	B8	B8	B8	B8	
7A	7E	7E	7E	7E	
7B	7E	7E	7E	7E	

Table 6-1-2 (3).

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
7C	7E	7E	7E	7E	
7D	7E	7E	7E	7E	
7E	94	80	80	80	
7F	80	80	80	80	
80	A8	A8	A8	A8	←
81	80	80	80	80	←
82	0C	2C	0C	2C	←
83	19	19	19	19	←
84	77	77	77	77	←
85	40	40	40	40	←
86	75	75	75	75	←
87	93	73	93	73	←
88	12	12	12	12	←
89	8A	83	8A	83	←
8A	A5	A5	A5	A5	←
8B	68	68	68	68	←
8C	4A	4A	4A	4A	←
8D	F0	F0	F0	F0	←
8E	00	00	00	00	←
8F	01	01	01	01	←
90	68	68	68	68	←
91	80	80	80	80	←
92	70	70	70	70	←
93	60	60	60	60	←
94	68	68	68	68	←
95	70	70	70	70	←
96	40	40	40	40	←
97	2E	2E	2E	2E	←
98	58	58	58	58	←
99	A0	A0	A0	A0	←
9A	30	30	30	30	←
9B	14	14	14	14	←
9C	58	58	58	58	←
9D	C0	C0	C0	C0	←
9E	30	30	30	30	←
9F	26	26	26	26	←
A0	78	78	78	78	←
A1	70	70	70	70	←
A2	4C	4C	4C	4C	←
A3	06	06	06	06	←
A4	58	58	58	58	←
A5	D0	D0	D0	D0	←
A6	60	60	60	60	←
A7	0F	0F	0F	0F	←

Table 6-1-2 (4).

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
A8	62	62	62	62	←
A9	91	B3	B3	B3	←
AA	62	62	62	62	←
AB	A2	A2	A2	A2	←
AC	62	62	62	62	←
AD	91	80	80	80	←
AE	62	62	62	62	←
AF	A2	A2	A2	A2	←
B0	04	04	04	04	←
B1	E5	E5	E5	E5	←
B2	04	04	04	04	←
B3	F7	F7	F7	F7	←
B4	40	73	73	73	←
B5	00	00	00	00	←
B6	B3	B3	B3	B3	←
B7	B3	B3	B3	B3	←
B8	21	21	21	21	←
B9	05	05	05	05	←
BA	11	11	11	11	←
BB	06	06	06	06	←
BC	71	71	71	71	←
BD	15	15	15	15	←
BE	20	20	20	20	←
BF	00	00	00	00	←
C0	22	22	22	22	←
C1	80	80	80	80	←
C2	22	22	22	22	←
C3	20	20	20	20	←
C4	40	40	40	40	←
C5	00	00	00	00	←
C6	40	40	40	40	←
C7	00	00	00	00	←
C8	00	00	00	00	←
C9	27	27	27	27	←
CA	CA	CA	CA	CA	←
CB	00	00	00	00	←
CC	40	40	40	40	←
CD	C4	C4	C4	C4	←
CE	1B	1B	1B	1B	←
CF	D8	F0	D8	F0	←
D0	A0	A0	A0	A0	←
D1	30	30	30	30	←
D2	20	20	20	20	←
D3	C0	C0	C0	C0	←

Table 6-1-2 (5).

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
D4	6A	6A	6A	6A	←
D5	60	60	60	60	←
D6	55	55	55	55	←
D7	55	55	55	55	←
D8	66	66	66	66	←
D9	25	25	25	25	←
DA	34	34	34	34	←
DB	3F	3F	3F	3F	←
DC	A0	A0	A0	A0	←
DD	00	00	00	00	←
DE	80	80	80	80	←
DF	00	00	00	00	
E0	F7	F7	F7	F7	
E1	1A	19	1A	19	
E2	33	32	33	32	
E3	FE	00	FE	00	
E4	3C	3C	3C	3C	
E5	24	24	24	24	
E6	83	83	83	83	
E7	A0	A0	A0	A0	
E8	67	67	67	67	
E9	4D	4D	4D	4D	
EA	33	33	33	33	
EB	5C	5C	5C	5C	
EC	5C	5C	5C	5C	
ED	5C	5C	5C	5C	
EE	3C	3C	3C	3C	
EF	0F	0F	0F	0F	
F0	10	10	10	10	
F1	2C	2C	2C	2C	
F2	0A	0A	0A	0A	
F3	36	36	36	36	
F4	72	72	72	72	
F5	46	46	46	46	
F6	E0	E0	E0	E0	
F7	50	50	50	50	
F8	3B	3B	3B	3B	
F9	14	14	14	14	
FA	E8	E8	E8	E8	
FB	90	90	90	90	
FC	00	00	00	00	
FD	02	02	02	02	
FE	F3	F3	F3	F3	
FF	A0	A0	A0	A0	

Table 6-1-2 (6).

Checking the recorded picture

Using EDITSEARCH, you can review the last recorded scene or check the recorded picture in the viewfinder and on the LCD screen.

(1) While pressing the small green button on the POWER switch, set it to CAMERA.

(2) Turn STANDBY up.

(3) Press the – (⊜) side of EDITSEARCH momentarily; the last few seconds of the recorded portion play back **(Rec Review).** Hold down the – side of EDITSEARCH until the camcorder goes back to the scene you want. The last recorded portion is played back. To go forward, hold down the + side **(Edit Search).**

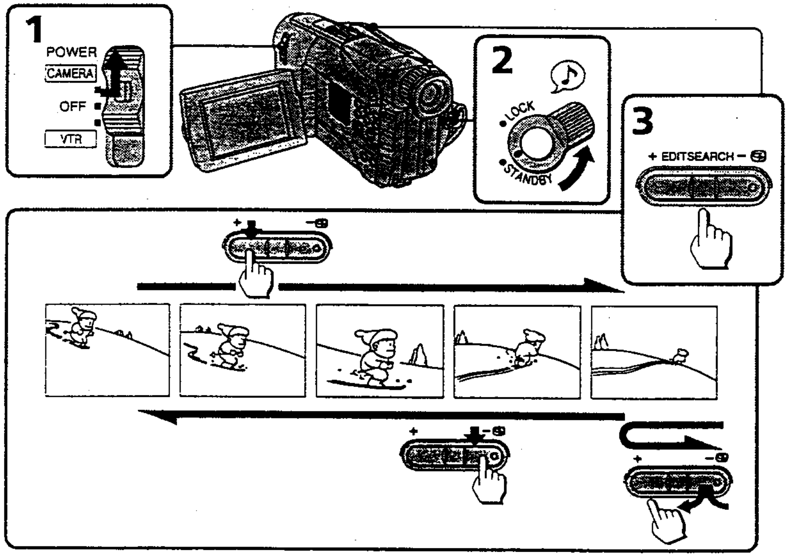
Comprobación de las imágenes grabadas

Utilizando EDITSEARCH, usted podrá revisar la última escena grabada o comprobar las imágenes grabadas en el visor y en la pantalla de cristal líquido.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, póngalo en CAMERA.

(2) Gire STANDBY hacia arriba.

(3) Presione momentáneamente el lado – (⊜) de EDITSEARCH y se reproducirán los últimos segundos de la parte grabada **(revisión de la grabación).** Mantenga presionado el lado – de EDITSEARCH hasta que la videocámara retroceda hasta la escena que usted desee. La última parte grabada se reproducirá. Para avanzar, mantenga presionado el lado + **(búsqueda para edición).**



To stop playback

Release EDITSEARCH.

To go back to the last recorded point after edit search

Press END SEARCH. The last recorded point is played back for about 5 seconds (10 seconds in LP mode) and stops. Note that this function does not work once you eject the cassette after you recorded on the tape.

To begin re-recording

Press START/STOP. Re-recording begins from the point you released EDITSEARCH. Provided you do not eject the cassette, the transition between the last scene you recorded and the next scene you record will be smooth.

Para parar la reproducción

Suelte EDITSEARCH.

Para retroceder hasta el punto grabado en último lugar después de la búsqueda para edición

Presione END SEARCH. El punto grabado en último lugar se reproducirá durante unos 5 segundos (10 segundos en el modo LP) y se detendrá. Tenga en cuenta que esta función no se activará una vez que haya expulsado el videocassette después de la grabación.

Para reanudar la grabación

Presione START/STOP. La grabación se iniciará desde el punto grabado en último lugar o donde dejó de presionar EDITSEARCH. Siempre que no extraiga el videocassette, la transición entre la última escena grabada y la siguiente se realizará de forma uniforme.

Playing back a tape

Reproducción de una cinta

You can monitor the playback picture on the LCD screen.

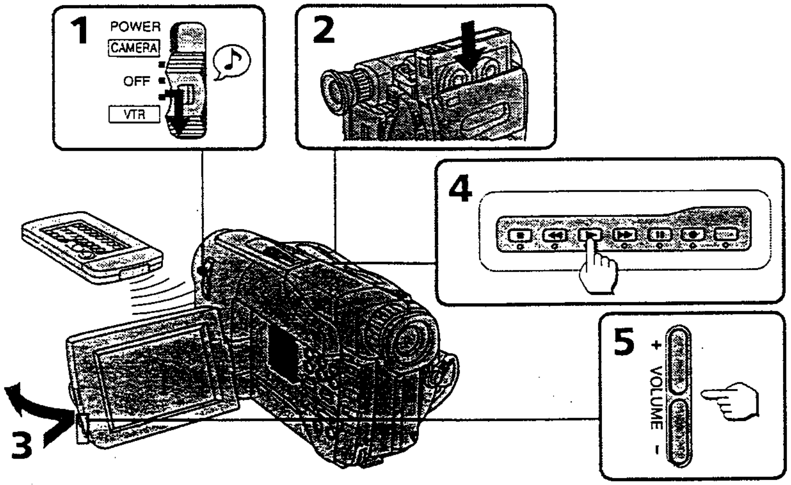
(1) While pressing the small green button on the POWER switch, set it to VTR. The video control buttons light up.
(2) Insert the recorded tape with the window facing out.
(3) While pressing OPEN, open the LCD panel. Adjust the angle of the LCD panel or the brightness of the LCD screen if necessary.
(4) Press ▷ to start playback.
(5) Adjust the volume using VOLUME.

You can also monitor the picture on a TV screen, after connecting the camcorder to a TV or VCR.

Usted podrá ver las imágenes de reproducción en la pantalla de cristal líquido.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, póngalo en VTR. Las teclas de control de vídeo se iluminarán.
(2) Inserte el videocassette grabado con la ventanilla hacia afuera.
(3) Manteniendo presionado OPEN, abra abra la pantalla de cristal líquido. Si es necesario, ajuste el ángulo o el brillo de la pantalla de cristal líquido.
(4) Para iniciar la reproducción, presione ▷.
(5) Ajuste el volumen utilizando VOLUME.

Usted también podrá contemplar las imágenes en la pantallas de un televisor después de haber conectado la videocámara a televisor o una videograbadora.



To stop playback, press □.
To rewind the tape, press ◀◀.
To fast-forward the tape rapidly, press ▶▶.

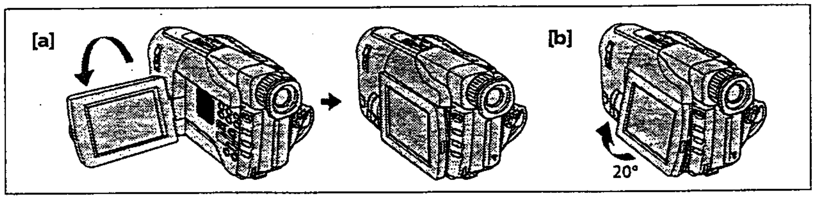
Para parar la reproducción, presione □.
Para rebobinar la cinta, presione ◀◀.
Para hacer que la cinta avance rápidamente, presione ▶▶.

When monitoring on the LCD screen

You can turn the LCD panel over and move back to the camcorder with the LCD screen facing out **[a]**. You can adjust the angle of the LCD screen by turning the LCD screen up to 20 degrees **[b]**.

Contemplación en la pantalla de cristal líquido

Usted podrá dar la vuelta a la pantalla de cristal líquido y replegarla en la videocámara encarada hacia afuera **[a]**. Usted podrá ajustar el ángulo de la pantalla de cristal líquido girándola hasta 20 grados **[b]**.



Using the remote commander

You can control playback using the supplied Remote Commander. Before using the Remote Commander, insert the R6 (size AA) batteries.

Note on DISPLAY button

Press DISPLAY to display the screen indicators on the LCD screen. To erase the indicators, press DISPLAY again. If the POWER switch is set to CAMERA, you can erase the indicator by pressing DISPLAY.

Using headphones or an earphone

Connect headphones (not supplied) to the ∩ jack (CCD-TRV41/TRV51/TRV81 only) or an earphone to the ◎ jack (CCD-TRV31 only). You can adjust the volume using VOLUME. When you use headphones or an earphone, the speaker on the camcorder is silent.

To view the playback picture in the viewfinder

Close the LCD panel. The viewfinder turns on automatically. When using the viewfinder, you can monitor sound only by using headphones or an earphone.
To view on the LCD screen again, open the LCD panel. The viewfinder turns off automatically.

Note on the lens cover

The lens cover does not open when the POWER switch is set to VTR. Do not open the lens cover manually. It may cause malfunction.

Utilización del telemando

Usted podrá controlar la reproducción utilizando el telemando suministrado.
Antes de utilizar el telemando, inserte las pilas R6 (tamaño AA).

Nota sobre la tecla DISPLAY

Presione DISPLAY para visualizar los indicadores en la pantalla de cristal líquido. Para borrarlos, presione otra vez DISPLAY. Si el selector POWER está en CAMERA, podrá borrar el indicador presionando DISPLAY.

Utilización de unos auriculares o de un auricular

Conecte unos auriculares (no suministrados) en la toma ∩ (CCD-TRV41/TRV51/TRV81 solamente) o un auricular en la toma ◎ (CCD-TRV31 solamente). Usted podrá ajustar el volumen utilizando VOLUME. Cuando utilice auriculares o un auricular, el altavoz de la videocámara estará silenciado.

Para ver las imágenes de reproducción en el visor

Cierre la pantalla de cristal líquido. El visor se encenderá automáticamente. Cuando utilice el visor, sólo podrá comprobar el sonido empleando unos auriculares o un auricular.
Para ver otra vez las imágenes en la pantalla LCD, abra la pantalla de cristal líquido. El visor se apagará automáticamente.

Nota sobre la cubierta del objetivo

La cubierta del objetivo no se abrirá cuando el selector POWER esté en VTR. No la abra manualmente, ya que podría causar un mal funcionamiento.

Various playback modes

You can enjoy noiseless pictures on the LCD screen during still, slow and picture search. (Crystal-clear still/slow/picture search)

To view a still picture (playback pause)

Press II during playback. To resume playback, press II or ▷.

To locate a scene (picture search)

Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing the tape or rewinding (skip scan)

Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume normal playback, press ▷.

To view the picture at 1/5 speed (slow playback)

Press I▶ on the Remote Commander during playback. To resume normal playback, press ▶. If slow playback lasts for about 1 minute, it shifts to normal speed automatically.

To view the picture at double speed – CCD-TRV81 only

For double speed playback in the reverse direction, press ◀II/<, then press x2 on the Remote Commander during playback. For double speed playback in the forward direction, press >/II▶, then press x2 during playback. To resume normal playback, press ▶.

Diversos modos de reproducción

Usted podrá ver imágenes sin ruido en la pantalla de cristal líquido durante la imagen fija, a cámara lenta y la búsqueda de imagen. (Imagen fija clara a cámara lenta/búsqueda de imagen)

Para ver una imagen fija (reproducción en pausa)

Presione II durante la reproducción. Para reanudarla, presione II o ▷.

Para localizar una escena (búsqueda de imagen)

Mantenga presionada ◀◀ o ▶▶ durante la reproducción. Para reanudar la reproducción normal, suelte la tecla.

Para ver las imágenes a alta velocidad durante el avance rápido o el rebobinado de la cinta (exploración con salto)

Mantenga presionada ◀◀ durante el rebobinado o ▶▶ durante el avance de la cinta. Para reanudar la reproducción normal, presione ▷.

Para ver las imágenes a 1/5 de la velocidad normal (reproducción a cámara lenta)

Presione I▶ del telemando durante la reproducción. Para reanudar la reproducción normal, presione ▶. Si la reproducción a cámara lenta dura 1 minuto aproximadamente, ésta cambiará automáticamente a la velocidad de reproducción normal.

Para ver las imágenes al doble de la velocidad normal – CCD-TRV81 solamente

Para reproducir a velocidad doble en sentido regresivo, presione ◀II/<, y después presione x2 del telemando durante la reproducción. Para reproducir a velocidad doble en sentido progresivo, presione >/II▶, y después presione x2 durante la reproducción. Para reanudar la reproducción a velocidad normal, presione ▶.

To view the picture frame-by-frame – CCD-TRV81 only

Press ◀II/< or >/II▶ on the Remote Commander in playback pause mode. If you keep pressing the button, you can view the picture at 1/25 speed. To resume normal playback, press ▶.

To change the playback direction – CCD-TRV81 only

Press ◀II/< on the Remote Commander for reverse direction or >/II▶ on the Remote Commander for forward direction during playback. To resume normal playback, press ▶.

To select the playback sound – CCD-TRV41/TRV51/TRV81 only

Change the "HiFi SOUND" mode setting in the menu system.

For standard 8 mm model users:

Tapes recorded in the Hi8 system can be played back on this camcorder. However, you cannot get as fine details as you would get using a Hi8 camcorder. Noise may appear during playback.

Notes on playback

- Streaks appear and the sound is muted in the various playback modes.
- When playback pause mode lasts for 5 minutes, the camcorder automatically enters stop mode.
- Horizontal noise appears at the centre of the screen when you play back a tape in reverse if the RC time code or the Data Code is displayed on the screen (CCD-TRV81 only). This is normal.

Displaying the date or time when you recorded - Data Code function

– CCD-TRV81 only

Even if you did not record the date or time when you were recording, you can display the date or time when you recorded (Data Code) on the TV during playback or editing. The Data Code is also displayed in the viewfinder and on the LCD screen.

Para ver las imágenes fotograma por fotograma – CCD-TRV81 solamente

Presione ◀II/< o >/II▶ del telemando en el modo de reproducción en pausa. Si mantiene presionada la tecla, podrá ver las imágenes a 1/25 de la velocidad normal.
Para reanudar la reproducción a velocidad normal, presione ▶.

Para cambiar el sentido de reproducción – CCD-TRV81 solamente

Presione ◀II/< del telemando para reproducir en sentido regresivo o >/II▶ para reproducir en sentido progresivo durante la reproducción. Para reanudar la reproducción normal, presione ▶.

Para seleccionar el sonido de reproducción – CCD-TRV41/TRV51/TRV81 solamente

Cambie el ajuste del modo "HiFi SOUND" en el sistema de menús.

Para los usuarios de los modelos de 8 mm estándar:

Las cintas grabadas en el sistema Hi8 podrán reproducirse en esta videocámara. Sin embargo, usted no podrá obtener los detalles finos que lograría utilizando una videograbadora de Hi8. Es posible que durante la operación aparezca ruido.

Notas sobre la reproducción

- En los diversos modos de reproducción aparecerán rayas y el sonido se silenciará.
- Cuando el modo de imagen fija dure más de 5 minutos, la videocámara entrará automáticamente en el modo de parada.
- Si reproduce una cinta en sentido regresivo con el código de tiempo RC o el código de datos visualizado en la pantalla, aparecerá ruido horizontal en el centro de la pantalla (CCD-TRV81 solamente.) Esto es normal.

Visualización de la fecha o la hora de la grabación - Función de código de datos

– CCD-TRV81 solamente

Aunque no haya grabado la fecha o la hora durante la videofilmación, podrá visualizarla después (código de datos) en el televisor durante la reproducción o la edición. El código de datos podrá visualizarse también en el visor y en la pantalla de cristal líquido.

To display the date when you recorded

Press DATE on the camcorder, or press DATA CODE on the Remote Commander. To make the date disappear, press DATE again or DATA CODE twice.

To display the time when you recorded

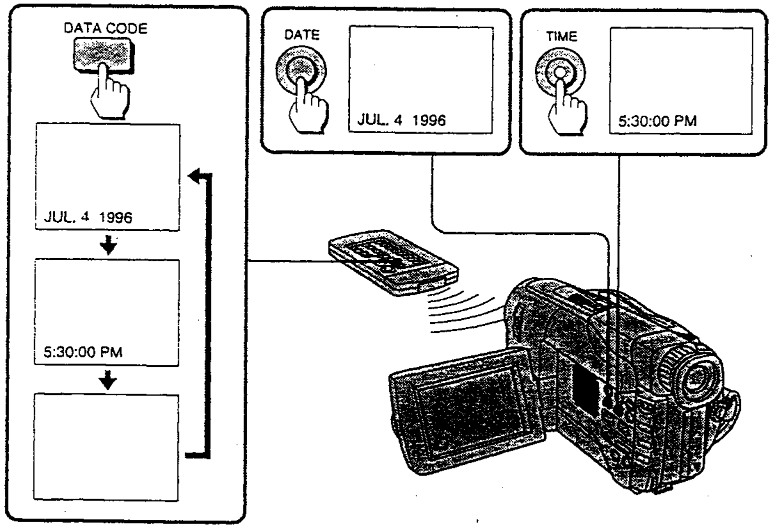
Press TIME on the camcorder, or press DATA CODE on the Remote Commander twice. To make the time disappear, press it again.

Para visualizar la fecha de la grabación

Presione DATE de la videocámara o DATA CODE del telemando. Para hacer que desaparezca la fecha, presione nuevamente DATE o dos veces DATA CODE.

Para visualizar la hora de la grabación

Presione TIME de la videocámara o presione dos veces DATA CODE del telemando. Para hacer que desaparezca la hora, vuelva a presionarla.



When bars (--:--:--) appear
- A blank portion of the tape is being played back.
- The tape was recorded by a camcorder without the Data Code function.
- The tape was recorded by a camcorder without having date and time set.
- The tape is unreadable due to tape damage or noise.
- The tape was recorded in LP mode.
- The tape is being played back in variable speed (Slow Playback, etc.)
- An index signal is marked, the RC time code is written, or PCM after recording is made on the tape.

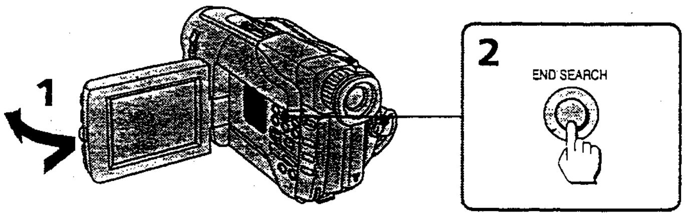
Las barras (--:--:--) aparecerán cuando
- Reproduzca una parte en blanco de la cinta.
- La cinta se haya grabado con una videocámara que no posea función de código de datos.
- La cinta se haya grabado sin haber ajustado la fecha ni la hora en la videocámara.
- Sea difícil de leer la cinta debido al daño o ruido en la misma.
- La cinta se haya grabado en el modo LP.
- La cinta se esté reproduciendo a velocidad variable (reproducción a cámara lenta, etc.).
- En la cinta esté marcada una señal de índice, esté escrito un código de tiempo RC, o haya realizado una postgrabación de PCM en la cinta.

Searching for the end of the picture

Búsqueda del final de una parte grabada

You can go to the end of the recorded portion after you record and play back the tape to make the transition between the last scene you recorded and the next scene smooth. The tape starts rewinding or fast-forwarding and the last 5 seconds (10 seconds in LP mode) of the recorded portion play back. Then the tape stops at the end of the recorded picture **(End Search).**
Note that the End Search function does not work once you eject the cassette after you have recorded on the tape.
(1) While pressing OPEN, open the LCD panel.
(2) Press END SEARCH.
This function works when the POWER switch is set to either CAMERA or VTR.

Usted podrá ir al final de la parte grabada después de la videofilmación y reproducir la cinta para que la transición entre la última escena grabada y la siguiente se realice suavemente. La cinta se rebobinará o avanzará rápidamente y se reproducirán los 5 últimos segundos (10 últimos segundos en el modo LP) de la parte grabada. Luego la cinta se detendrá al final de la imagen grabada **(Búsqueda del final).**
Tenga en cuenta que la función de búsqueda del final no podrá activarse una vez que haya expulsado el videocassette después de haber grabado la cinta.
(1) Manteniendo presionado OPEN, abra la pantalla de cristal líquido.
(2) Presione END SEARCH.
Esta función podrá activarse cuando el selector POWER esté en CAMERA o en VTR.



If you start recording after using END SEARCH
Occasionally, the transition between the last scene you recorded and the next scene may not be smooth.

Si inicia la videofilmación después de haber utilizado END SEARCH
Es posible que a veces la transición entre la última escena grabada y la siguiente no sea uniforme.

Using alternative power sources

You can choose any of the following power sources for your camcorder: battery pack and house current. Choose the appropriate power source depending on where you want to use your camcorder.

Place	Power source	Accessory to be used
Indoors	House current	Supplied AC power adaptor
Outdoors	Battery pack	Battery pack NP-F530 (supplied), NP-F730

Note on power sources

Disconnecting the power source or removing the battery pack during recording or playback may damage the inserted tape. If this happens, restore the power supply again immediately.

Utilización con fuentes de alimentación alternativas

Usted podrá elegir cualquiera de las siguientes fuentes para alimentar la videocámara: batería y corriente de la red. Elija la fuente adecuada según el lugar donde desee utilizar la videocámara.

Lugar	Fuente de alimentación	Accesorio necesario
Interiores	Corriente de la red	Adaptador de CA (suministrado)
Exteriores	Batería	Batería NP-F530 (suministrada), NP-F730

Nota sobre las fuentes de alimentación

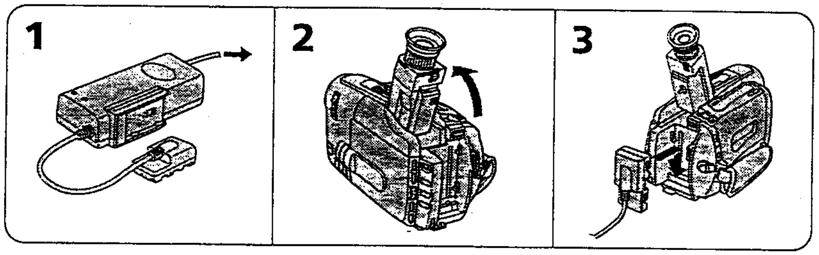
Si desconecta la fuente de alimentación o quita la batería durante la videofilmación o la reproducción, es posible que se dañe la cinta insertada. En tal caso, vuelva a restablecer inmediatamente la alimentación.

Using the house current

(1) Connect the AC power cord to a wall outlet.
(2) Lift up the viewfinder.
(3) Slide the connecting plate down into the guides at the rear of the camcorder until it clicks.

Utilización de la corriente de la red

(1) Conecte el cable principal a una toma de la red.
(2) Levante el visor.
(3) Deslice la placa conectora hacia abajo dentro de las guías de la parte posterior de la videocámara hasta que chasquee.



To remove the adaptor

The adaptor is removed in the same way as the battery pack.

Para extraer el adaptador

El adaptador se extrae de la misma forma que la batería.

WARNING
The power cord must only be changed at a qualified service shop.

PRECAUTION
The set is not disconnected from the AC power source (mains) as long as it is connected to the house current, even if the set itself has been turned off.

Notes on the VTR/CAMERA lamp

- The VTR/CAMERA lamp will remain lit for a while even if the unit is unplugged after use. This is normal.
- If the VTR/CAMERA lamp does not light, disconnect the power cord. After about one minute, reconnect the power cord.

This mark indicates that this product is a genuine accessory for Sony video products.
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

ADVERTENCIA
El cable de alimentación solamente deberá ser cambiado en una estación de servicio cualificada.

PRECAUCIÓN
La unidad no se desconectará de la fuente de alimentación de CA (red) mientras permanezca enchufado en una toma de la red, incluso aunque haya desconectado su alimentación.

Notas sobre la lámpara VTR/CAMERA

- La lámpara VTR/CAMERA permanecerá encendida durante cierto tiempo aunque desenchufe la unidad después de haberla utilizado. Esto es normal.
- Si la lámpara VTR/CAMERA no se enciende, desconecte el cable de alimentación. Después de aproximadamente un minuto, vuelva a conectarlo.

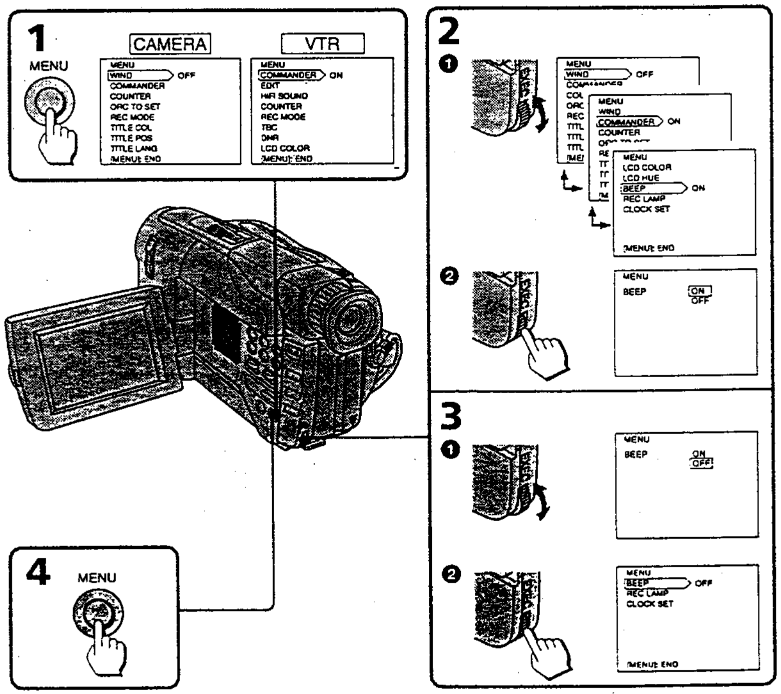
Esta marca indica que este producto es un accesorio genuino para productos de vídeo Sony.
Cuando adquiera productos de vídeo Sony, Sony recomienda que adquiera accesorios con la marca "GENUINE VIDEO ACCESSORIES".

Changing the mode settings

You can change the mode settings in the menu system to further enjoy the features and functions of the camcorder.
(1) Press MENU to display the menu.
(2) Turn the control dial to select the desired item, then press the dial.
(3) Turn the control dial to select the desired mode, and press the dial. If you want to change the other modes, repeat steps 2 and 3.
(4) Press MENU to erase the menu display.

Cambio de los ajustes de modo

Usted podrá cambiar los ajustes de modo en el sistema de menús para disfrutar más de las características y funciones de la videocámara.
(1) Presione MENU para hacer que se visualice el menú.
(2) Gire el dial de control para seleccionar el ítem deseado, y después presione el dial.
(3) Gire el dial de control para seleccionar el modo deseado, y presione el dial. Si desea cambiar otros modos, repita los pasos 2 y 3.
(4) Para borrar la visualización del menú, presione MENU.


1
MENU
CAMERA
MENU
WIND OFF
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG
MENU: END
VTR
MENU
COMMANDER ON
EDIT
HiFi SOUND
COUNTER
REC MODE
TBC
DNR
LCD COLOR
MENU: END
2
❶
MENU
WIND OFF
COMMANDER ON
COUNTER
LCD COLOR
LCD HUE
BEEP ON
REC LAMP
CLOCK SET
MENU: END
❷
MENU
BEEP ON OFF
3
❶
MENU
BEEP ON OFF
❷
MENU
BEEP OFF
REC LAMP
CLOCK SET
MENU: END
4
MENU

While recording in mirror mode
The menu does not appear on the LCD screen.

Durante la videofilmación en el modo de espejo
El menú no aparecerá en la pantalla de cristal líquido.

Selecting the mode setting of each item

Items for both CAMERA and VTR modes

COUNTER* <NORMAL/TIME CODE> (CCD-TRV81 only)
- Normally select NORMAL.
- Select TIME CODE to display the RC time code in order to edit more precisely.

REC MODE* <SP/LP>
- Select SP when recording in SP (standard play) mode.
- Select LP when recording in LP (long play) mode.

COMMANDER <ON/OFF>
- Select ON when using the supplied Remote Commander for the camcorder.
- Select OFF when not using the Remote Commander.

LCD COLOR*
Select this item to adjust the color on the LCD screen.

LCD HUE*
Select this item to adjust the hue on the LCD screen.

BEEP* <ON/OFF>
- Select ON so that beeps sound when you start/stop recording, etc.
- Select OFF when you do not want to hear the beep sound.

Items for CAMERA mode only

WIND <ON/OFF> (CCD-TRV41/TRV51/TRV81 only)
- Select ON to reduce wind noise when recording in strong wind.
- Normally select OFF.

Selección de los ajustes de modo en cada ítem

Ítemes para los modos CAMERA y VTR

COUNTER* <NORMAL/TIME CODE> (CCD-TRV81 solamente)
- Normalmente seleccione NORMAL.
- Seleccione TIME CODE para utilizar el código de tiempo RC para editar con mayor precisión.

REC MODE* <SP/LP>
- Seleccione SP para grabar en el modo SP (reproducción estándar).
- Seleccione LP para grabar en el modo LP (reproducción larga).

COMMANDER <ON/OFF>
- Seleccione ON cuando desee utilizar el telemando suministrado para controlar la videocámara.
- Seleccione OFF cuando no vaya a utilizar el telemando.

LCD COLOR*
Seleccione este ítem para ajustar el color de la pantalla de cristal líquido.

LCD HUE*
Seleccione este ítem para ajustar el matiz de la pantalla de cristal líquido.

BEEP* <ON/OFF>
- Seleccione ON para oír el pitido al iniciar/parar la videofilmación, etc.
- Seleccione OFF cuando no desee oír el pitido.

Ítemes para el modo CAMERA solamente

WIND<ON/OFF> (CCD-TRV41/TRV51/TRV81 solamente)
- Seleccione ON para reducir el ruido del viento durante la videofilmación con viento fuerte.
- Normalmente seleccione OFF.

ORC TO SET*
Select this item to automatically adjust the recording condition to get the best possible recording.
If you have already performed this function, "ORC ON" is displayed.

D ZOOM* <ON/OFF> (CCD-TRV41/TRV51/TRV81 only)
- Select ON to activate digital zooming.
- Select OFF to not use the digital zoom. The camcorder goes back to 15x zoom.

AUTO DATE* <ON/OFF> (CCD-TRV31/TRV41/TRV51 only)
- Select ON to record the date for 10 seconds after recording has started.
- Select OFF to not record the date.

REC LAMP* <ON/OFF>
- Select OFF when you do not want the camera recording/battery lamp at the front of the unit to light up.
- Normally select ON.

TITLE COL* <WHITE/ YELLOW/VIOLET/RED/ CYAN/GREEN/BLUE>
Select the color of the title.

TITLE POS* <CENTER/BOTTOM>
- Select CENTER to center the title in the picture.
- Select BOTTOM to position the title at the bottom of the picture.

TITLE LANG* <ENGLISH/ FRANÇAIS/ ESPAÑOL/ PORTUGUÊS>
Select the language of the preset titles.

TITLE1 SET*/TITLE2 SET*
Store your own titles.

CLOCK SET*
Reset the date or time.

ORC TO SET*
Seleccione este ítem para ajustar automáticamente las condiciones de videofilmación a fin de obtener la mejor grabación posible.
Si ya había activado esta función, se visualizará "ORC ON".

D ZOOM*<ON/OFF> (CCD-TRV41/TRV51/TRV81 solamente)
- Seleccione ON para activar el zoom digital.
- Seleccione OFF cuando no utilice el zoom digital. La videocámara volverá a ajustarse al zoom de 15x.

AUTO DATE* <ON/OFF> (CCD-TRV31/TRV41/TRV51 solamente)
- Seleccione ON para grabar la fecha durante 10 segundos después de haber iniciado la videofilmación.
- Seleccione OFF cuando no desee grabar la fecha.

REC LAMP* <ON/OFF>
- Seleccione OFF cuando no desee que la lámpara de videofilmación/estado de la batería que se encuentra en la parte frontal de la unidad se encienda.
- Normalmente seleccione ON.

TITLE COL* <WHITE/YELLOW/VIOLET/RED/ CYAN/GREEN/BLUE>
Seleccione el color del título.

TITLE POS* <CENTER/BOTTOM>
- Seleccione CENTER para centrar el título en la imagen.
- Seleccione BOTTOM para colocar el título en la parte inferior de la imagen.

TITLE LANG* <ENGLISH/FRANÇAIS/ESPAÑOL/ PORTUGUÊS>
Seleccione el idioma para los títulos preajustados.

TITLE1 SET*/TITLE2 SET*
Almacene sus propios títulos.

CLOCK SET*
Reajuste la fecha o la hora.

Items for VTR mode only

EDIT <ON/OFF>
- Select ON to minimize picture deterioration when editing.
- Normally select OFF.

HiFi SOUND <STEREO/1/2> (CCD-TRV41/TRV51/TRV81 only)
- Normally select STEREO.
- Select 1 or 2 to play back a dual sound track tape.

TBC* <ON/OFF> (CCD-TRV81 only)
- Normally select ON, to correct for jitter.
- Select OFF to not correct for jitter. The picture may not be steady when played back.

DNR* <ON/OFF> (CCD-TRV81 only)
- Normally select ON to reduce picture noise.
- Select OFF if the picture has a lot of movement, causing a conspicuous afterimage.

* These settings are retained even when the battery is removed, as long as the lithium battery is in place.

Note on TBC setting
Set TBC to OFF when playing back
- A tape you have dubbed over.
- A tape on which you recorded the signal of a TV game or similar machine.

The following settings work only during playback
EDIT, HiFi SOUND, TBC, and DNR.

Ítemes para el modo VTR solamente

EDIT <ON/OFF>
- Seleccione ON para mantener al mínimo la degradación de la imagen en la edición.
- Normalmente seleccione OFF.

HiFi SOUND <STEREO/1/2> (CCD-TRV41/TRV51/TRV81 solamente)
- Normalmente seleccione STEREO.
- Seleccione 1 o 2 para reproducir una cinta grabada con sonido doble.

TBC* <ON/OFF> (CCD-TRV81 solamente)
- Normalmente seleccione ON para corregir fluctuaciones.
- Seleccione OFF si no desea corregir las fluctuaciones. Las imágenes reproducidas pueden no ser estables.

DNR* <ON/OFF> (CCD-TRV81 solamente)
- Normalmente seleccione ON para reducir el ruido de las imágenes.
- Seleccione OFF si las imágenes tienen mucho movimiento y causan imagen residual notable.

* Estos ajustes se conservarán incluso aunque quite la batería, mientras la pila de litio esté en su lugar.

Nota sobre el ajuste de TBC
Ponga TBC en OFF cuando reproduzca
- Una cinta duplicada.
- Una cinta en la que haya grabado la señal de un juego de vídeo o de otra máquina similar.

Durante la reproducción solamente trabajarán los ajustes siguientes:
EDIT, HiFi SOUND, TBC, y DNR.

Letting the subject monitor the shot

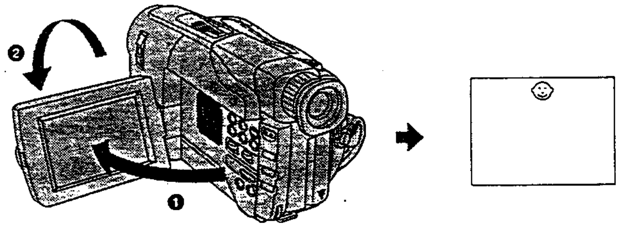
Para permitir que el sujeto observe la videofilmación

You can turn the LCD panel over so that it faces the other way and you can let the subject monitor the shot while shooting with the viewfinder.

Turn the LCD panel vertically first until it clicks, then turn it over. The ☺ indicator appears on the LCD screen **(Mirror mode)** and the date and remaining tape indicators disappear.

Usted podrá girar la pantalla de cristal líquido para que quede encarada de forma que el sujeto pueda ver las imágenes mientras usted videofilme a través del visor.

Gire en primer lugar verticalmente la pantalla de cristal líquido hasta que chasquee, y después dele la vuelta. En la pantalla de cristal líquido aparecerá el indicador ☺ **(Modo de espejo)** y los indicadores de fecha y de cinta restante desaparecerán.



To Cancel Mirror Mode

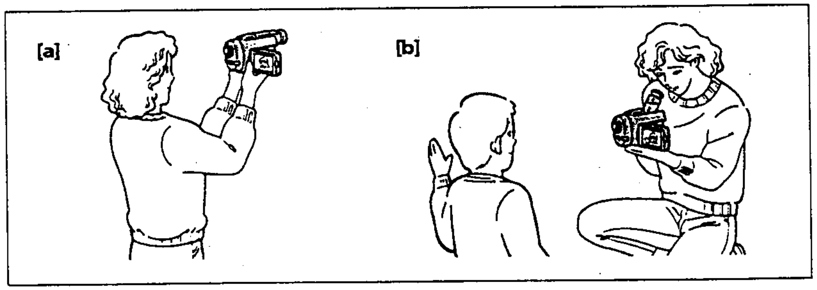
Turn the LCD panel back toward the viewfinder.

Notes on mirror mode
- When you turn the LCD panel about 135 degrees to 210 degrees, the camcorder enters mirror mode.
- Using the mirror mode, you can record yourself while watching yourself on the LCD **[a]**.
- The picture on the LCD looks as a mirror-image while recording in mirror mode **[b]**. The STBY indicator appears as ●II and REC as ●. Other indicators are reversed. The other indicators may not appear in mirror mode.

Para cancelar el modo de espejo

Gire la pantalla de cristal líquido hacia el visor.

Notas sobre el modo de espejo
- Cuando gire la pantalla de cristal líquido de unos 135 a 210 grados, la videocámara entrará en el modo de espejo.
- Utilizando el modo de espejo, podrá videofilmarse usted mismo observándose en la pantalla de cristal líquido **[a]**.
- Cuando videofilme en el modo de espejo, las imágenes aparecerán en la pantalla al igual que en un espejo **[b]**. El indicador STBY aparecerá como ●II, y REC como ●. Los otros indicadores se invertirán. Es posible que los otros indicadores no aparezcan en el modo de espejo.



- While recording in mirror mode, you cannot operate the following buttons: TITLE, DATE, TIME, MENU, COUNTER RESET, and ZERO MEM on the Remote Commander (CCD-TRV81 only).
- The date appears in reverse when the AUTO DATE feature is turned on (CCD-TRV31/TRV41/TRV51 only). When recorded it will be normal.

- Cuando videofilme en el modo de espejo, no podrá utilizar las teclas siguientes: TITLE, DATE, TIME, MENU, COUNTER RESET, ni ZERO MEM del telemando (CCD-TRV81 solamente).
- Cuando haya activado la función AUTO DATE, la fecha aparecerá invertida (CCD-TRV31/TRV41/TRV51 solamente). Cuando la grabe, aparecerá en forma normal.

Fade-in and fade-out

Aumento gradual y desvanecimiento

You can fade in or out to give your recording a professional appearance.
When fading in, the picture gradually fades in from black or mosaic while the sound increases.
When fading out, the picture gradually fades to black or mosaic while the sound decreases.

Usted podrá realizar el aumento gradual o el desvanecimiento para dar a sus grabaciones un aspecto profesional.
Cuando realice el aumento gradual, la imagen aparecerá gradualmente desde un fondo negro o de mosaico mientras aumenta el sonido. Cuando realice el desvanecimiento, la imagen desaparecerá gradualmente hacia un fondo negro o de mosaico mientras disminuye el sonido.

Fade-in and fade-out

Aumento gradual y desvanecimiento

When fading in [a]

(1) While the camcorder is in Standby mode, press FADER. The fade indicator starts flashing.
(2) Press START/STOP to start recording. The fade indicator stops flashing.

When fading out [b]

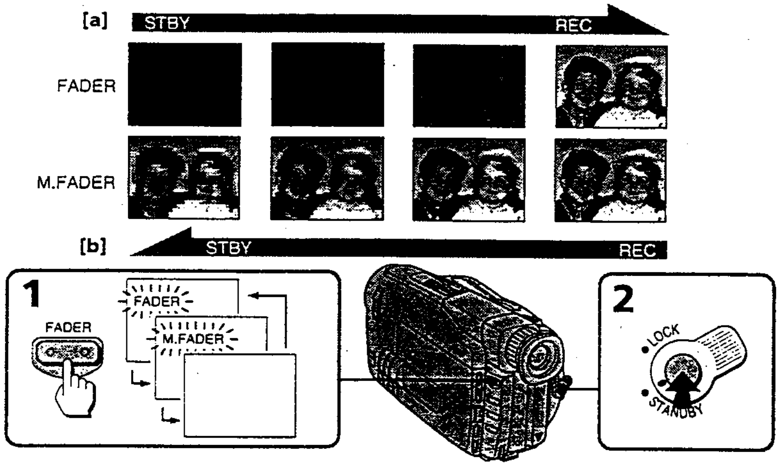
(1) During recording, press FADER. The fade indicator starts flashing.
(2) Press START/STOP to stop recording. The fade indicator stops flashing, and then recording stops.

Aumento gradual [a]

(1) Mientras la videocámara esté en el modo de espera, presione FADER. El indicador de aumento gradual y desvanemiento empezará a parpadear.
(2) Presione START/STOP para empezar a grabar. El indicador de aumento gradual y desvanecimiento dejará de parpadear.

Desvanecimiento [b]

(1) Durante la grabación, presione FADER. El indicador de aumento gradual y desvanecimiento empezará a parpadear.
(2) Presione START/STOP para parar la grabación. El indicador de aumento gradual y desvanecimiento dejará de parpadear, y la grabación se parará.



To cancel the fade-in/fade-out function

Before pressing START/STOP, press FADER until the fade indicator disappears.

When the date or time indicator is displayed

The date or time indicator does not fade in or fade out.

Para cancelar la función de aumento gradual y desvanecimiento

Antes de presionar START/STOP, presione FADER hasta que desaparezca el indicador de aumento gradual y desvanecimiento.

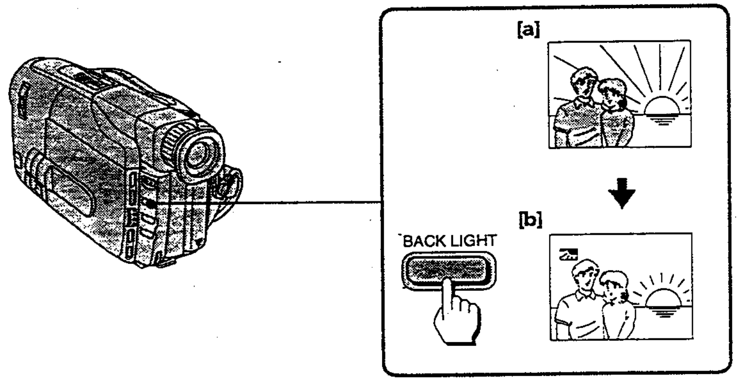
Cuando se visualice el indicador de la fecha o la hora

El indicador de la fecha o la hora no aumentará gradualmente ni se desvanecerá.

Shooting with backlighting

When you shoot a subject with the light source behind the subject or a subject with a light background, use the BACK LIGHT function.

Press BACK LIGHT. The ▨ indicator appears in the viewfinder.



[a] Subject is too dark because of backlight.
[b] Subject becomes bright with backlight compensation.

After shooting

Be sure to release this adjustment condition by pressing BACK LIGHT again. The ▨ indicator disappears. Otherwise, the picture will be too bright under normal lighting conditions.

This function is also effective under the following conditions:

- On snow, e.g. at a ski resort
- At the beach under strong sunshine
- A subject with a light source nearby or a mirror reflecting light
- A white subject against a white background. Especially when you shoot a person wearing shiny clothes made of silk or synthetic fiber, his or her face tends to become dark if you do not use this function.

To make a fine adjustment

You can adjust the exposure manually. However, when you adjust the exposure manually, BACK LIGHT does not operate.

Videofilmación a contraluz

Cuando videofilme un motivo con la fuente de iluminación a sus espaldas, o un motivo con fondo iluminado, utilice la función de contraluz (BACK LIGHT).

Presione BACK LIGHT. El indicador ▨ aparecerá en el visor.

[a] El motivo está demasiado oscuro debido a la iluminación de fondo.
[b] El motivo adquiere brillo con la compensación de contraluz.

Después de videofilmar

No se olvide de cancelar esta condición de ajuste presionando otra vez BACK LIGHT. El indicador ▨ desaparecerá. De otra forma, la imagen tendrá un brillo excesivo en condiciones de iluminación normal.

Esta función también será eficaz en las condiciones siguientes:

- En la nieve, por ejemplo, en una pista de esquí.
- En la playa bajo un sol intenso
- Cuando un motivo tenga una fuente de luz próxima o un espejo que refleje luz.
- Cuando un motivo blanco tenga un fondo blanco. Especialmente cuando videofilme a una persona con ropas brillantes de seda o fibra sintética, su rostro tenderá a oscurecerse si no utiliza esta función.

Para ajustar con precisión

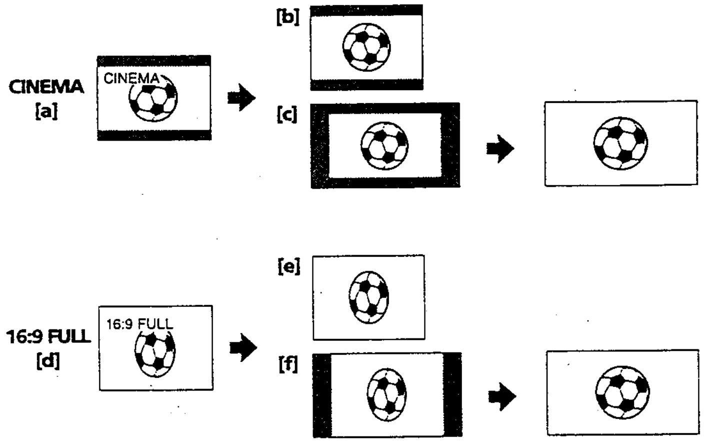
Usted podrá ajustar manualmente la exposición. Sin embargo, cuando ajuste manualmente la exposición, BACK LIGHT no funcionará.

Using the wide mode function

– CCD-TRV41/TRV51/TRV81 only

Selecting the desired mode

You can record a cinemalike picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9 FULL).



CINEMA

Black bands appear at the top and the bottom of the screen, and the viewfinder or LCD screen **[a]** and a normal TV screen **[b]** look wide. You can also watch the picture without black bands on a wide-screen TV **[c]**.

16:9 FULL

The picture in the viewfinder or LCD screen **[d]** or on a normal TV **[e]** is horizontally compressed. You can watch the picture of normal images on a wide-screen TV **[f]**.

Utilización de la función de pantalla amplia

– CCD-TRV41/TRV51/TRV81 solamente

Selección del modo deseado

Usted podrá grabar imágenes como las de cine (CINEMA) o una imagen alargada para verla en un televisor de pantalla amplia de 16:9 (16:9 FULL).

CINEMA

En las partes inferior y superior de la pantalla aparecerán franjas negras y las pantallas del visor o de la pantalla de cristal líquido **[a]** y la de un televisor normal **[b]** aparecerán alargadas. La imagen podrá verse también sin las franja negras en un televisor de pantalla amplia **[c]**.

16:9 FULL

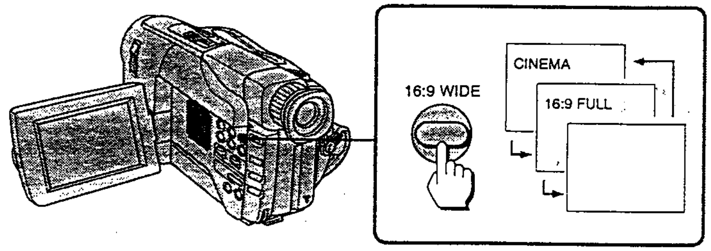
La imagen del visor o de la pantalla de cristal líquido **[d]** o de un televisor **[e]** normal se comprime horizontalmente. Las imágenes de una grabación normal podrán verse también en un televisor de pantalla amplia **[f]**.

Using the wide mode function

While the camcorder is in Standby mode, press 16:9 WIDE repeatedly so that the desired mode indicator appears in the viewfinder or on the LCD screen.

Utilización de la función de pantalla amplia

Con la videocámara en el modo de espera, presione repetidamente 16:9 WIDE de forma que en el visor o en la pantalla de cristal líquido aparezca el indicador del modo deseado.



To cancel wide mode

Press 16:9 WIDE repeatedly until the wide mode indicator disappears.

To watch the tape recorded in wide mode

To watch the tape recorded in CINEMA mode, set the screen mode of the wide-screen TV to zoom mode. To watch the tape recorded in 16:9 FULL mode, set it to full mode. For details, refer to the instruction manual of your TV.
Note that the picture recorded in 16:9 FULL mode looks compressed on a normal TV.

Notes on wide mode

- If wide mode is set to 16:9 FULL, the Steady Shot function does not work and the ((✋)) indicator flashes.
- When you record in 16:9 FULL mode, the date or time indicator will be widened on the wide-screen TV.
- If you dub a tape, the tape is copied in the same mode as the original recording.
- The wide mode is canceled automatically 5 minutes after you remove the power source.

Para cancelar el modo de pantalla amplia

Presione repetidamente 16:9 WIDE hasta que desaparezca el indicador del modo de pantalla amplia.

Para ver una grabación en el modo de pantalla amplia

Para ver una grabación en el modo CINEMA, ajuste el modo de pantalla del televisor de pantalla amplia al modo de zoom. Para ver la grabación en el modo 16:9 FULL, ajústelo al modo completo. Con respecto a los detalles, consulte el manual de instrucciones del televisor.
Tenga en cuenta que las imágenes grabadas en el modo 16:9 FULL se verán comprimidas en un televisor normal.

Notas sobre el modo de pantalla amplia

- Si el modo de pantalla amplia está ajustado a 16:9 FULL, la función de videofilmación estable no trabajará y el indicador ((✋)) parpadeará.
- Cuando grabe en el modo 16:9 FULL, el indicador de la fecha o la hora se ensanchará en un televisor de pantalla amplia.
- Si duplica una cinta, ésta se copiará en el mismo modo que la grabación original.
- El modo de pantalla amplia se cancelará automáticamente 5 minutos después de haber desconectado la fuente de alimentación.

Enjoying picture effect

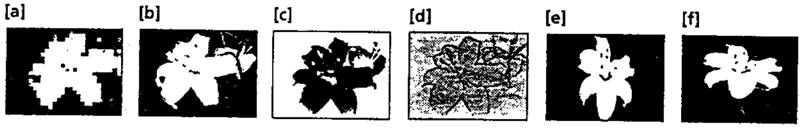
Para disfrutar de efectos de imagen

Selecting picture effect

You can make pictures like those of television with the Picture Effect function.

Selección del efecto de imagen

Con la función de efectos de imagen, podrá conseguir imágenes como las de televisión.



MOSAIC [a]
The picture is mosaic.

SOLARIZE [b]
The light intensity is more clear, and the picture looks like an illustration.

B&W
The picture is monochrome (black and white).

SEPIA
The picture is sepia.

NEG. ART [c]
The color of the picture is reversed.

PASTEL [d]
The contrast of the picture is emphasized, and the picture looks like an animated cartoon.

SLIM [e] (CCD-TRV41/TRV51/TRV81 only)
The picture expands vertically.

STRETCH [f] (CCD-TRV41/TRV51/TRV81 only)
The picture expands horizontally.

MOSAIC [a]
La imagen aparece como un mosaico.

SOLARIZE [b]
La intensidad de iluminación es más clara, y la imagen aparece como en la ilustración.

B&W
La imagen es monocroma (blanco y negro).

SEPIA
La imagen es de color sepia.

NEG. ART [c]
El color de la imagen se invierte.

PASTEL [d]
El contraste de la imagen se acentúa, y la imagen parece como en dibujos animados.

SLIM [e] (CCD-TRV41/TRV51/TRV81 solamente)
La imagen se estira.

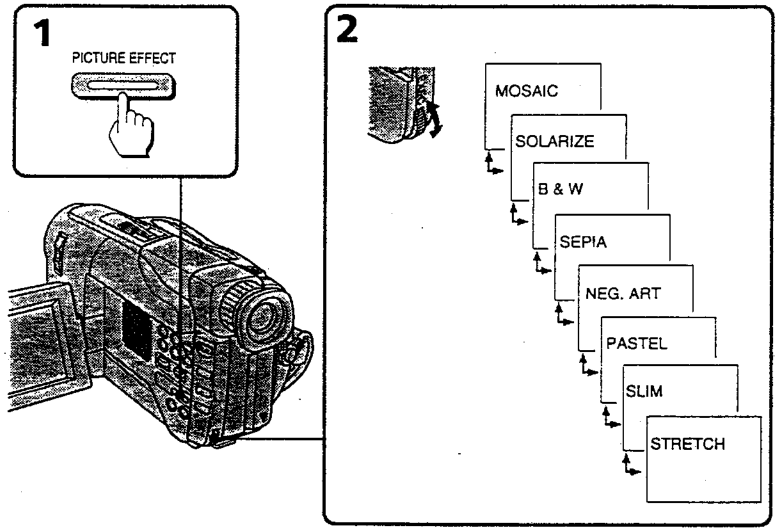
STRETCH [f] (CCD-TRV41/TRV51/TRV81 solamente)
La imagen se ensancha.

Using picture effect function

(1) Press PICTURE EFFECT.
(2) Turn the control dial to select the desired picture effect mode.

Utilización de la función de efectos de imagen

(1) Presione PICTURE EFFECT.
(2) Gire el dial de control para seleccionar el modo de efecto de imagen deseado.



To turn off picture effect
Press PICTURE EFFECT. The indicator in the viewfinder or on the LCD screen goes out.

Note on the picture effect
When you turn the power off, the camcorder returns automatically to normal mode.

Para desactivar el efecto de imagen
Presione PICTURE EFFECT. El indicador del visor o de la pantalla de cristal líquido desaparecerá.

Nota sobre los efectos de imagen
Cuando desconecte la alimentación, la videocámara volverá automáticamente al modo normal.

Focusing manually

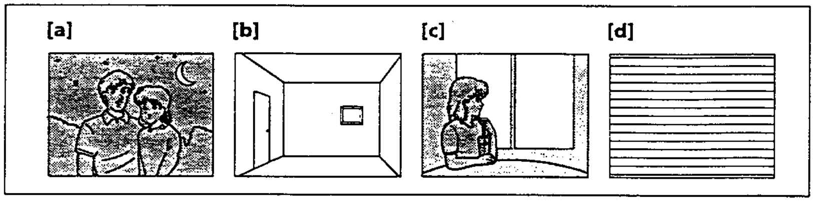
Enfoque manual

When to use manual focus

In the following cases you should obtain better results by adjusting the focus manually.

Cuándo utilizar el enfoque manual

En los casos siguientes se obtendrán mejores resultados ajustando manualmente el enfoque.



- Insufficient light **[a]**
- Subjects with little contrast - walls, sky, etc. **[b]**
- Too much brightness behind the subject **[c]**
- Horizontal stripes **[d]**
- Subjects through frosted glass
- Subjects beyond nets, etc.
- Bright subject or subject reflecting the light
- Shooting a stationary subject when using a tripod

- Luz insuficiente **[a]**
- Motivos con poco contraste — paredes, cielo, etc. **[b]**
- Demasiado brillo detrás del motivo **[c]**
- Rayas horizontales **[d]**
- Motivos situados detrás de un vidrio con escarcha
- Motivos situados detrás de redes, etc.
- Motivo brillante o que refleja luz
- Cuando videofilme un motivo estacionario utilizando un trípode

Focusing manually

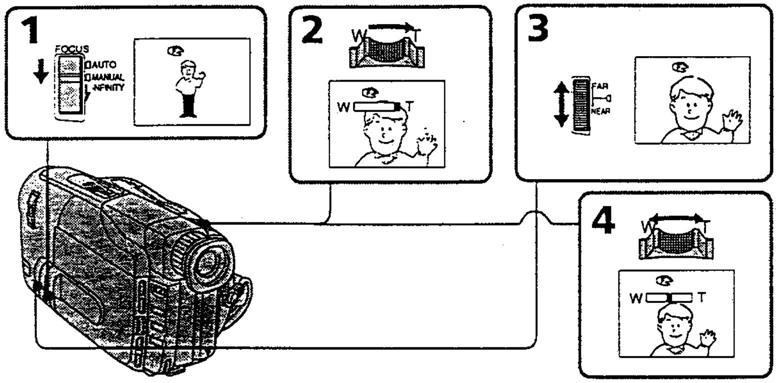
When focusing manually, first focus in telephoto before recording, and then reset the shot length.

(1) Set FOCUS to MANUAL. The ⊛ indicator appears in the viewfinder.
(2) Move the power zoom lever to the "T" side until the lever reaches the end.
(3) Turn the FAR/NEAR dial to achieve a sharp focus.
(4) Set the desired shot length using the power zoom lever.

Enfoque manual

Cuando enfoque manualmente, hágalo en primer lugar en telefoto antes de videofilmar, y después ajuste la distancia de videofilmación.

(1) Ponga FOCUS en MANUAL. En el visor aparecerá el indicador ⊛.
(2) Mueva la palanca del zoom motorizado hasta el lado "T" hasta que llegue al final.
(3) Gire el dial FAR/NEAR hasta enfocar con nitidez.
(4) Ajuste la distancia de videofilmación deseada utilizando la palanca del zoom motorizado.



To return to autofocus mode

Set FOCUS to AUTO. The ⊛ indicator in the viewfinder disappears.

Shooting in relatively dark places

Shoot at wide-angle after focusing in the telephoto position.

To record a very distant subject

Push FOCUS down to INFINITY. The lens focuses on the most distant subject while FOCUS is held down. When it is released, manual focus mode is resumed.

Use this function when shooting through a window or a screen, to focus on a most distant subject.

Notes on manual focusing

The following indicators may appear:

▲ when recording a very distant subject.
👤 when the subject is too close to focus on.

Para volver al modo de enfoque automático

Ponga FOCUS en AUTO. El indicador ⊛ desaparecerá del visor.

Para videofilmar en lugares relativamente oscuros

Videofilme en gran angular después de haber enfocado en telefoto.

Para videofilmar a una distancia muy corta del motivo

Empuje FOCUS hasta INFINITY. El objetivo enfocará el motivo más distante mientras mantenga presionada FOCUS. Cuando la suelte, se restablecerá el enfoque manual.

Utilice esta función para videofilmar a través de una ventana o una reja, a fin de enfocar el motivo más lejano.

Notas sobre el enfoque manual

Es posible que aparezcan los indicadores siguientes:

▲ cuando videofilme un motivo muy distante.
👤 cuando el motivo se encuentre demasiado cerca como para poder enfocarlo.

Using the PROGRAM AE function

Utilización de la función exposición automática programada

Selecting the best mode

You can select one of six PROGRAM AE (Auto Exposure) modes to suit your shooting situation, referring to the following.

Selección del mejor modo

Usted podrá seleccionar uno de seis modos de exposición automática programada (PROGEAM AE) de acuerdo con la situación de videofilmación, refiriéndose a lo siguiente.

● Spotlight mode
For subjects in spotlight, such as at the theater or a formal event.

👥 Soft Portrait mode
For zooming in on a still subject in telephoto mode, or for a subject behind an obstacle such as a screen. Creates a soft background for subjects such as people or flowers, and faithfully reproduces skin color.

🏌 Sports Lesson mode
For recording fast-moving subjects such as in tennis or golf games.

⛱ Beach & Ski mode
For people or faces in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

🌅 Sunset & Moon mode
For recording subjects in dark environments such as sunsets, fireworks, neon signs, or general night views.

🏞 Landscape mode
For distant subjects (more than 10 metres away) such as mountains or when recording a subject behind an obstacle such as a window or screen.

Note on shutter speed

The shutter speed in the following PROGRAM AE modes is as follows:

Soft Portrait mode - from 1/60 to 1/500
Sports Lesson mode - from 1/250 to 1/4000
Beach & Ski mode - from 1/60 to 1/250

● Modo de proyector
Para motivos situados bajo un proyector, como en el teatro o en algún acontecimiento formal.

👥 Modo de retrato suave
Para acercarse con telefoto a un motivo fijo en el modo de telefoto, o para un motivo situado detrás de un obstáculo como una pantalla. Este modo crea un fondo suave para motivos tales como personas o flores, y reproduce fielmente el color de la piel.

🏌 Modo de aprendizaje de deportes
Para videofilmar motivos de movimiento rápido, como un partido de tenis o juegos de golf.

⛱ Modo de playa y esquí
Para personas o caras muy iluminadas o que reflejen luz, como en una playa en verano, o en una pista de esquí.

🌅 Modo de crepúsculo e iluminación lunar
Para videofilmar motivos en ambientes oscuros, como puestas del sol, fuegos artificiales, letreros de neón, o vistas nocturnas en general.

🏞 Modo de paisaje
Para motivos distantes (situados a más de 10 metros), tales como montañas, o cuando el motivo se encuentre detrás de un obstáculo como una ventana o una red.

Nota sobre la velocidad de obturación

La velocidad de obturación de los modos de exposición automática programada siguientes es la siguiente:

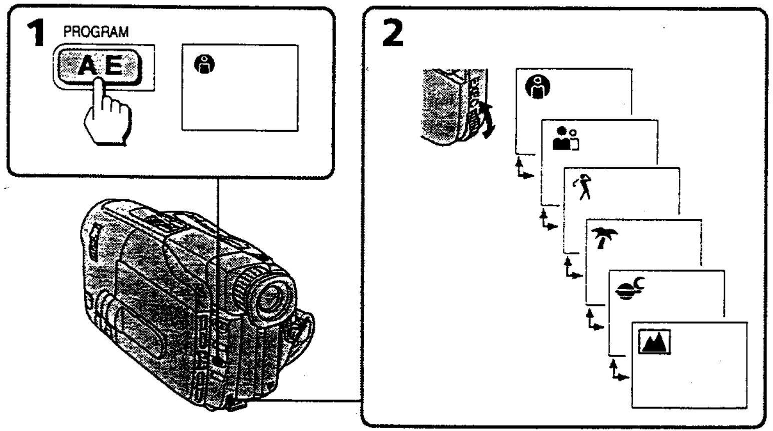
Modo de retrato suave: de 1/60 a 1/500
Modo de aprendizaje de deportes: de 1/250 a 1/4000
Modo de playa y esqui: de 1/60 a 1/250

Using the PROGRAM AE function

(1) Press PROGRAM AE.
(2) Turn the control dial to select the desired PROGRAM AE mode.

Utilización de la función de exposición automática programada

(1) Presione PROGRAM AE.
(2) Gire el dial de control para seleccionar el modo de exposición automática programada deseado.



To turn off program AE

Press PROGRAM AE.

Notes on focus setting

- In the Spotlight, Sports lesson and Beach & Ski modes, you cannot take close-ups because the camcorder is set to focus only on subjects in the middle to far distance.
- In the Sunset & Moon and Landscape modes, the camcorder is set to focus only on distant subjects.

Note on PROGRAM AE

You can adjust the exposure while recording using PROGRAM AE mode.

Para desactivar la exposición automática programada

Presione PROGRAM AE.

Notas sobre el ajuste del enfoque

- En los modos de proyector, de aprendizaje de deportes, y de playa y esquí, no podrá tomar primeros planos porque la videocámara estará ajustada para enfocar solamente motivos situados de media a gran distancia.
- En el modo de crepúsculo e iluminación lunar y de paisaje, la videocámara solamente enfocará motivos distantes.

Nota sobre la exposición automática programada

Usted podrá ajustar la exposición durante la grabación utilizando el mode PROGRAM AE.

Adjusting the exposure

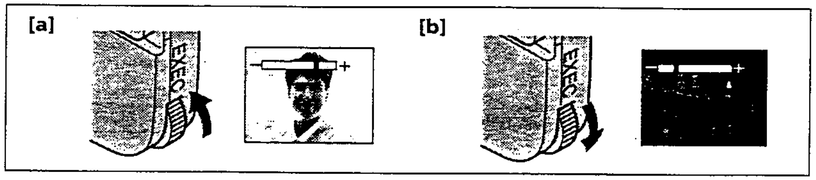
Ajuste de la exposición

When to adjust the exposure

When you shoot in a snowfield or on a beach in the mid-summer and the subject may become dark because of the extreme brightness, you can change the brightness of the picture. You can also use this function when the subject is too bright - subjects on stages, night views, etc.

Cuándo ajustar la exposición

Cuando videofilme en una pista de nieve, o en una playa en verano, y el motivo pueda resultar oscuro debido al exceso de brillo, podrá cambiar el brillo de la imagen. Usted podrá utilizar también esta función cuando el motivo sea demasiado brillante, sujetos en escenarios, vistas nocturnas, etc.



[a] Turn the control dial up when:
- The background is too bright (back lighting)
- Insufficient light: most of the picture is dark

[b] Turn the control dial down when:
- Bright subject and dark background
- To record the darkness faithfully

[a] Gire el mando del menú hacia arriba cuando:
- El fondo sea demasiado brillante (contraluz)
- La iluminación sea insuficiente: la mayor parte de la imagen resultará oscura

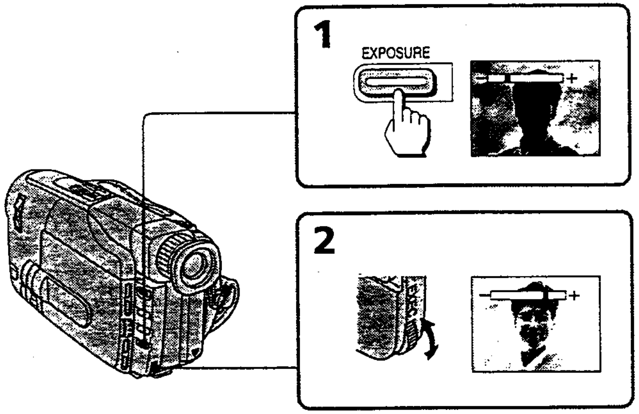
[b] Gire el mando del menú hacia abajo cuando:
- El motivo sea brillante y el fondo oscuro
- Para videofilmar bien en la oscuridad

Adjusting the exposure

(1) Press EXPOSURE.
(2) Turn the control dial to adjust the brightness.

Ajuste de la exposición

(1) Presione EXPOSURE.
(2) Gire el dial de control para ajustar el brillo.



To return to automatic exposure mode

Press EXPOSURE again.

Shooting with the sun behind you
If the light source is behind your subject, or in the following situations, the subject will be recorded too dark.
- The subject is indoors and there is a window behind the subject.
- Bright light sources are included in the scene.
- When shooting a person wearing white or shiny clothes in front of a white background, the face will be recorded too dark.

Shooting in the dark
We recommend you to use a video light (not supplied). To get the best color, you must maintain a sufficient light level.

When you adjust the exposure manually
- BACK LIGHT does not work.
- If you press PROGRAM AE, the camcorder automatically returns to automatic exposure mode.

Para volver al modo de exposición automática

Presione otra vez EXPOSURE.

Videofilmación con el sol a sus espaldas
Si la fuente de iluminación está detrás de su motivo, o en las situaciones siguientes, dicho motivo resultará demasiado oscuro.
- El motivo está en interiores y existe una ventana detrás de él.
- La escena incluye fuentes de luz.
- Cuando videofilme una persona con vestido blanco o brillante frente a un fondo blanco, la cara resultará demasiado oscura.

Videofilmación en la oscuridad
Recomendamos utilizar una lámpara para vídeo (no suministrada). Para obtener los mejores colores, deberá mantener un nivel de iluminación suficiente.

Cuando ajuste manualmente la exposición
- BACK LIGHT no trabajará.
- Si presiona PROGRAM AE, la videocámara volverá automáticamente al modo de exposición automática.

Releasing the STEADY SHOT function

– CCD-TRV41/TRV81 only

When you shoot, the «◎» indicator appears in the viewfinder. This indicates that the Steady Shot function is working and the camcorder compensates for camera-shake.

You can release the Steady Shot function when you do not need to use the Steady Shot function. Do not use the Steady Shot function when shooting a stationary object with a tripod.

Set STEADY SHOT to OFF.

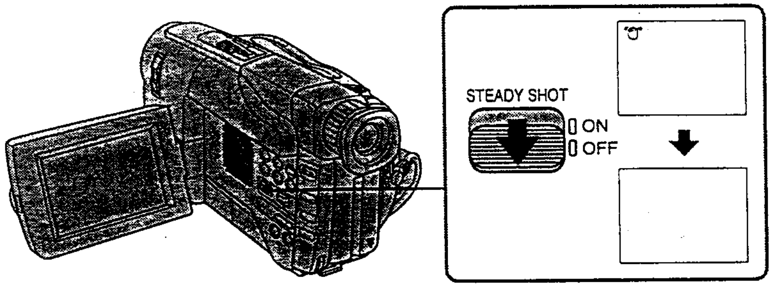
Desactivación de la función de videofilmación estable

– CCD-TRV41/TRV81 solamente

Cuando videofilme, en el visor aparecerá el indicador «◎». Esto significará que la función de videofilmación estable está activada, y que la videocámara está compensando las sacudidas que recibe.

Usted podrá desactivar la función de videofilmación estable cuando no necesite utilizarla.
No utilice la función de videofilmación estable cuando videofilme un motivo estacionario con un trípode.

Ponga STEADY SHOT en OFF.



To activate the Steady Shot function again

Set STEADY SHOT to ON.

Notes on the Steady Shot function
- The Steady Shot function will not correct excessive camera-shake.
- When you switch the STEADY SHOT function on or off, the exposure may fluctuate.

Para volver a activar la función de videofilmación estable,

Ponga STEADY SHOT en ON.

Notas sobre la videofilmación estable
- La función de videofilmación estable no corregirá las sacudidas excesivas de la videocámara.
- Cuando active o desactive la función de videofilmación estable, es posible que fluctúe la exposición.

Superimposing a title

Superposición de un título

You can select one of eight preset titles. You can also select the language, position, and color of titles in the menu system.

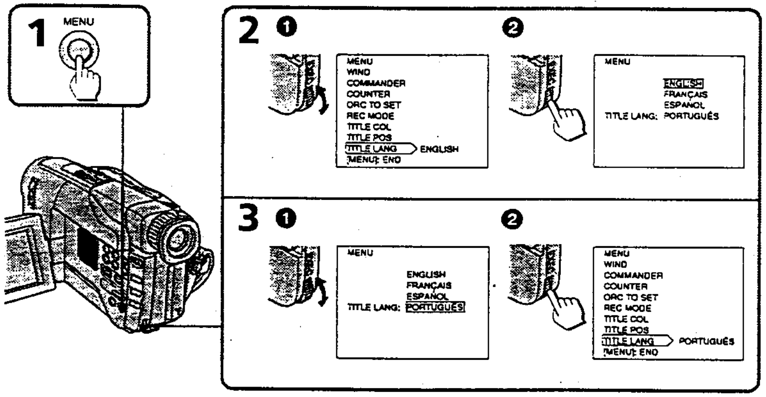
Usted podrá seleccionar entre ocho títulos preajustados. También podrá seleccionar el idioma, la posición, y el color de los títulos utilizando el sistema de menús.

Selecting the language

(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE LANG, then press the dial.
(3) Turn the control dial to select the desired language, then press the dial.
(4) Press MENU to erase the menu display.

Selección del idioma

(1) Con la videocámara en el modo de espera, presione MENU para hacer que se visualice el menú.
(2) Gire el dial de control para seleccionar TITLE LANG, y después presione el dial.
(3) Gire el dial de control para seleccionar el idioma deseado, y después presione el dial.
(4) Presione MENU para borrar la visualización del menú.



Using titles

To add the title from the beginning

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it is flashing.
When the desired title appears, wait for it to stop flashing.
(2) Press START/STOP to start recording.
(3) When you want to stop recording the title, press TITLE.

Utilización de títulos

Para añadir un título desde el comienzo

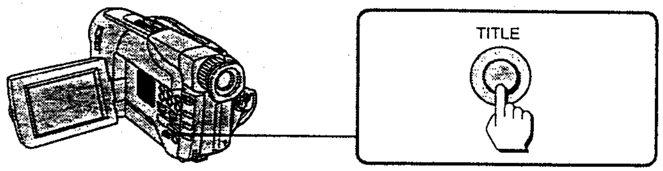
(1) Con la videocámara en el modo de espera, presione repetidamente TITLE hasta que aparezca el título deseado.
Cada vez que aparezca un nuevo título, parpadeará.
Cuando aparezca el título deseado, espere hasta que deje de parpadear.
(2) Para iniciar la grabación, presione START/STOP.
(3) Cuando desee dejar de grabar el título, presione TITLE.

To add the title while you are recording

(1) While the camcorder is in Standby mode, press TITLE repeatedly until the desired title appears.
Each time a new title appears, it is flashing.
(2) When the desired title appears, wait for it to stop flashing, and press TITLE again to erase the title from the display.
(3) Press START/STOP to start recording.
(4) When you reach the point where you want to add the title, press TITLE.
(5) When you want to stop recording the title, press TITLE again.

Para añadir el título durante la videofilmación

(1) Con la videocámara en el modo de espera, presione repetidamente TITLE hasta que aparezca el título deseado.
Cada vez que aparezca un nuevo título, parpadeará.
(2) Cuando aparezca el título deseado, espere hasta que deje de parpadear, y después vuelva a presionar TITLE para hacer que deje de visualizarse.
(3) Para iniciar la grabación, presione START/STOP.
(4) Cuando llegue al punto en el que desee añadir el título, presione TITLE.
(5) Cuando desee dejar de grabar el título, vuelva a presionar TITLE.



Titles cycle as follows:
Original title 1 → Original title 2 → HELLO! → HAPPY BIRTHDAY → HAPPY HOLIDAYS → CONGRATULATIONS! → OUR SWEET BABY → WEDDING → VACATION → THE END
After "THE END" appears, the title display disappears, and then Original title 1 returns.

Notes on superimposing a title

- If you have not made any original titles, they are not displayed.
- You cannot select a title while you are recording.
- FADER does not work while the title is displayed.
- You cannot simultaneously record the title and the date or time.
- You cannot record the title during fade-in/fade-out.
- If you display the menu while superimposing a title, the title is not recorded while the menu is being displayed.

Los títulos aparecerán secuencialmente en el orden siguiente:
Título original 1 → Título original 2 → ¡HOLA! → ¡FELIZ CUMPLEAÑOS! → FELIZ NAVIDAD → ¡FELICIDADES! → NUESTRO BEBE → LA BODA → VACACIONES → FIN
Después de que haya aparecido "FIN", desaparecerá la visualización del título, y aparecerá el título original 1.

Notas sobre la superposición de un título

- Si no ha confeccionado títulos originales, no se visualizará ninguno.
- Usted no podrá seleccionar un título mientras esté videofilmando.
- FADER no trabajará mientras esté visualizándose un título.
- Usted no podrá grabar simultáneamente y la fecha o la hora.
- Usted no podrá grabar un título durante el aumento gradual ni el desvanecimiento.
- Si hace que se visualice el menú durante la superposición de un título, el título no se grabará mientras esté visualizándose el título.

To select the color of the title

(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the dial to select TITLE COL, then press the dial.
(3) Turn the control dial to select the desired color, then press the dial.
You can chose from the following 7 colors:
WHITE ←→ YELLOW ←→ VIOLET ←→ RED ←→ CYAN ←→ GREEN ←→ BLUE
(4) Press MENU to erase the menu display.

To select the position of the title

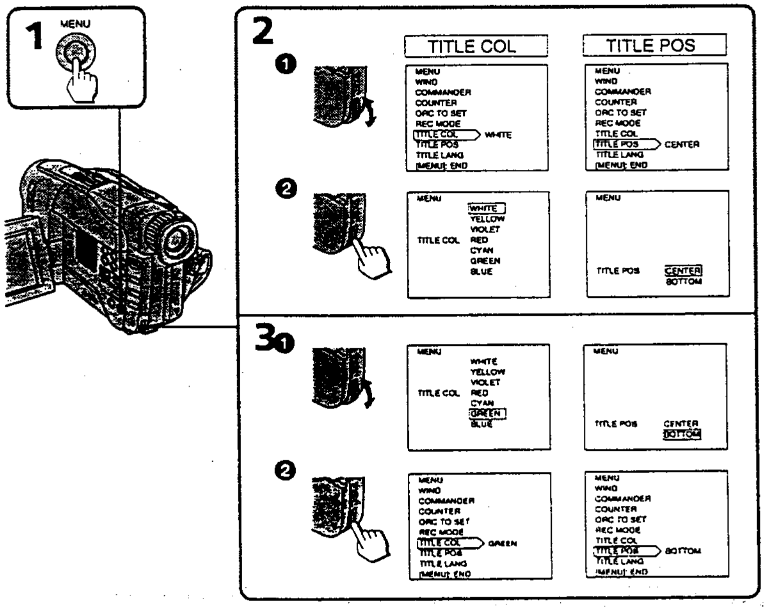
(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the dial to select TITLE POS, then press the dial.
(3) Turn the control dial to select the desired position (CENTER or BOTTOM), then press the dial.
(4) Press MENU to erase the menu display.

Para seleccionar el color del título

(1) Con la videocámara en el modo de espera, presione MENU para hacer que visualice el menú.
(2) Gire el dial para seleccionar TITLE COL, y después presione el dial.
(3) Gire el dial de control para seleccionar el color deseado, y después presione el dial.
Usted podrá elegir entre los 7 colores siguientes:
WHITE ←→ YELLOW ←→ VIOLET ←→ RED ←→ CYAN ←→ GREEN ←→ BLUE
(4) Presione MENU para borrar la visualización del menú.

Para seleccionar la ubicación del título

(1) Con la videocámara en el modo de espera, presione MENU para hacer que visualice el menú.
(2) Gire el dial para seleccionar TITLE POS, y después presione el dial.
(3) Gire el dial de control para seleccionar la posición deseada (CENTER o BOTTOM), y después presione el dial.
(4) Presione MENU para borrar la visualización del menú.


1
MENU
2
❶
❷
TITLE COL
TITLE POS
MENU
WIND
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG
[MENU]: END
WHITE
CENTER
TITLE COL
WHITE
YELLOW
VIOLET
RED
CYAN
GREEN
BLUE
TITLE POS
CENTER
BOTTOM
3
GREEN
BOTTOM

Making your own titles

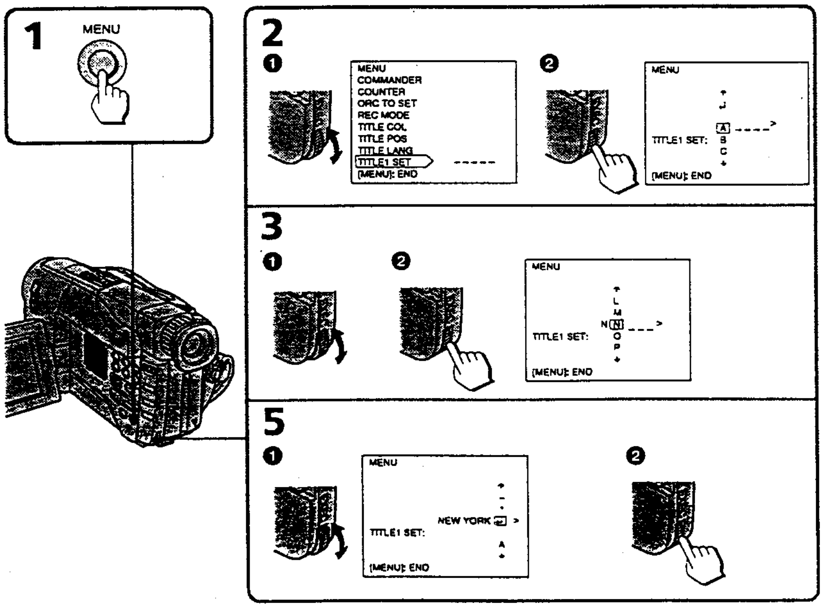
Confección de sus títulos originales

You can make up to two titles and store them in the camcorder. We recommend to eject the cassette before you begin.
Your title can have up to 22 characters.

(1) While the camcorder is in Standby mode, press MENU to display the menu.
(2) Turn the control dial to select TITLE1 SET or TITLE2 SET, then press the dial.
(3) Turn the control dial to select the desired character, then press the dial.
(4) Repeat step 3 until you finish the title.
(5) When you are finished, turn the control dial to select ⏎, then press the dial.
(6) Press MENU to erase the menu display.

Usted podrá confeccionar dos títulos y almacenarlos en la videocámara. Recomendamos extraer el videocassette antes de comenzar.
Su título podrá tener hasta 22 caracteres.

(1) Con la videocámara en el modo de espera, presione MENU para hacer que se visualice el menú.
(2) Gire el dial de control para seleccionar TITLE1 SET o TITLE2 SET, y después presione el dial.
(3) Gire el dial de control para seleccionar el carácter deseado, y después presione el dial.
(4) Repita el paso 3 hasta finalizar el título.
(5) Cuando haya finalizado, gire el dial de control para seleccionar ⏎, y después presione el dial.
(6) Para eliminar la visualización del título, presione MENU.


1
MENU
2
❶
❷
MENU
COMMANDER
COUNTER
ORC TO SET
REC MODE
TITLE COL
TITLE POS
TITLE LANG
TITLE1 SET

[MENU]: END
TITLE1 SET:
A
B
C
3
L
M
N
O
P
5
NEW YORK ⏎

To edit a title you have stored

In step 2, select TITLE1 SET or TITLE2 SET, depending on which title you want to edit, then change the title.

If you enter 22 characters in step 4

The title is stored immediately (and you can skip step 5).

If you take 5 minutes or longer to enter characters while a cassette is in the camcorder

The power goes off automatically. Characters you have entered remain. Turn STANDBY down once and then up again, then proceed from step 1.

To delete a title

At the leftmost character position, select ⌨ and press TITLE. Do not erase the title by selecting empty spaces. If you do so, a title full of empty spaces is stored.

Para editar un título que haya almacenado

En el paso 2, seleccione TITLE1 SET o TITLE2 SET, dependiendo de qué título desee editar, y después cambie el título.

Si introdujo 22 caracteres en el paso 4

El título se almacenará inmediatamente (y usted podrá saltar el paso 5).

Si tarda 5 minutos o más en introducir caracteres mientras haya un videocassette en la videocámara

La alimentación se desconectará automáticamente. Los caracteres que haya introducido permanecerán. Gire STANDBY hacia abajo una vez, después hacia arriba, y después vuelva al paso 1.

Para borrar un título

En la posición del carácter del extremo izquierdo, seleccione ⌨ y presione TITLE. No borre el título introduciendo espacios en blanco. Si lo hiciese, se almacenaría un título lleno de espacios en blanco.

Re-recording a picture in the middle of a recorded tape

Regrabación en medio de una cinta grabada

– CCD-TRV81 only

You can insert a scene in the middle of a recorded tape by setting the starting and ending points. The previous recorded portion will be erased. When the RC time code appears, set COUNTER to NORMAL in the menu system to display the tape counter.

– CCD-TRV81 solamente

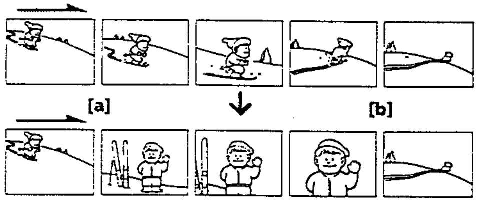
Usted podrá insertar una escena en medio de una cinta grabada estableciendo los puntos de comienzo y finalización. La parte previamente grabada se borrará. Cuando aparezca un código de tiempo RC, ponga COUNTER en NORMAL en el sistema de menús para que se visualice el contador de la cinta.

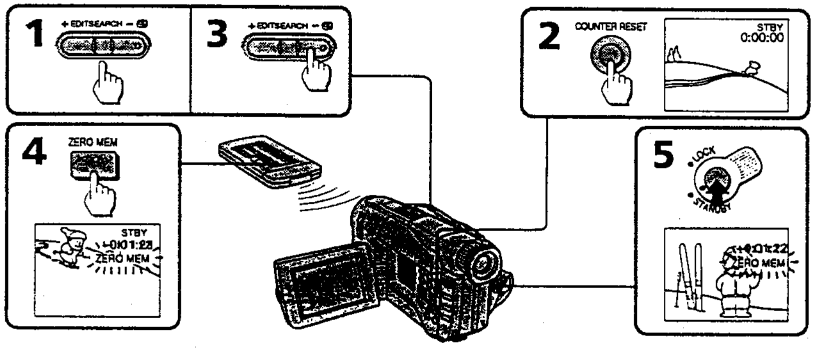
Re-recording a picture in the middle of a recorded tape

(1) While the camcorder is in Standby mode, keep pressing the + (forward playback) or – (reverse playback) side of EDITSEARCH, and release the button where you want to end the insertion [b]. The camcorder enters Standby mode again.
(2) Press COUNTER RESET. The counter resets to zero.
(3) Keep pressing the – side of EDITSEARCH and release the button at the point where you want to start the insertion [a].
(4) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.
(5) Press START/STOP to start recording. The recording stops automatically at the counter zero point.

Regrabación en medio de una cinta grabada

(1) Con la videocámara en el modo de espera, mantenga presionado el lado + (reproducción progresiva) o – (reproducción regresiva) de EDITSEARCH, y suelte la tecla en el punto en el que desee finalizar la inserción [b]. La videocámara volverá a entrar en el modo de espera.
(2) Presione COUNTER RESET. El contador se repondrá a cero.
(3) Mantenga presionado el lado – de EDITSEARCH, y suelte la tecla en el punto en el que desee iniciar la inserción [a].
(4) Presione ZERO MEM del telemando. El indicador ZERO MEM parpadeará.
(5) Para iniciar la grabación, presione START/STOP. La grabación se parará automáticamente en el punto cero del contador.





To change the end point
Press ZERO MEM to erase the ZERO MEM indicator, then repeat steps 2 to 5.

Note on re-recording
The picture and the sound may be distorted at the end of the inserted portion when it is played back.

Para cambiar el punto de finalización
Presione ZERO MEM para borrar el indicador ZERO MEM, y después repita los pasos 2 a 5.

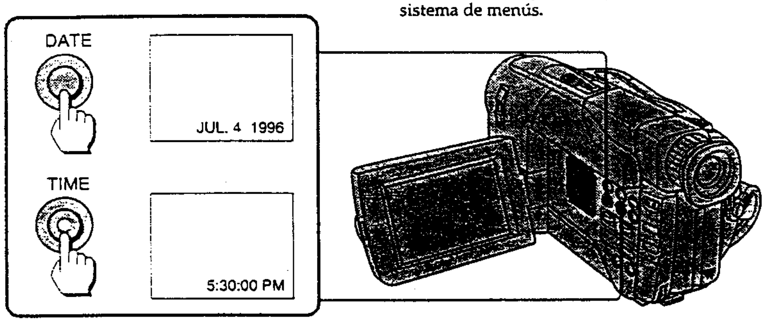
Nota sobre la regrabación
Las imágenes y el sonido pueden distorsionarse al final de la parte insertada cuando realice la reproducción.

Recording with the date or time

Videofilmación con la fecha o la hora

Before you start recording or during recording, press DATE or TIME. You can record the date or time displayed in the viewfinder or on the LCD screen with the picture. You cannot record the date and time at the same time. Except for the date or time indicator, no indicator in the viewfinder or on the LCD screen is recorded.
The clock is set at the factory to Tokyo time for the models sold in Japan, and to New York or Panama time for other models. You can reset the clock in the menu system.

Antes de iniciar la videofilmación, o durante ella, presione DATE o TIME. Usted podrá grabar la fecha o la hora indicada en el visor o en la pantalla de cristal líquido junto con las imágenes. Usted no podrá grabar al mismo tiempo la fecha y la hora. Excepto la indicación de la fecha o la hora, no se grabará ningún indicador del visor ni de la pantalla de cristal líquido.
El reloj está ajustado de fábrica a la hora de Tokio para los modelos comercializados en Japón y a la hora de Nueva York o Panamá para otros modelos. Usted podrá reajustar el reloj con el sistema de menús.



To stop recording with the date or time
Press DATE or TIME again. The date or time indicator disappears. The recording continues.

Note on the date or time indicator
If you press DATE or TIME while you are recording in CINEMA mode, the indicators in the viewfinder or on the LCD screen move upwards.

Para parar la grabación de la fecha o la hora
Vuelva a presionar DATE o TIME. La indicación de la fecha o de la hora desaparecerá. La grabación continuará.

Nota sobre el indicador de la fecha o de la hora
Si presiona DATE o TIME durante la videofilmación en el modo CINEMA, los indicadores del visor o de la pantalla de cristal líquido se moverán hacia arriba.

Selecting the START/STOP mode

Selección del modo de inicio/parada de la grabación

Your camcorder has two modes besides normal start/stop mode. These modes enable you to take a series of quick shots resulting in a lively video.

(1) While pressing OPEN, open the LCD panel.

(2) Set START/STOP MODE to the desired mode.
⊻ : Recording starts when you press START/STOP, and stops when you press it again (normal mode).
⊥ : The camcorder records only while you press down START/STOP.
5SEC : When you press START/STOP, the camcorder records for 5 seconds and then stops automatically.

(3) Turn STANDBY up and press START/STOP. Recording starts.

If you selected 5SEC, the remaining tape indicator disappears and five dots appear in the viewfinder or on the LCD screen. The dots disappear at a rate of one per second as illustrated below. When five seconds elapse and all the dots disappear, the camcorder switches to Standby mode automatically.

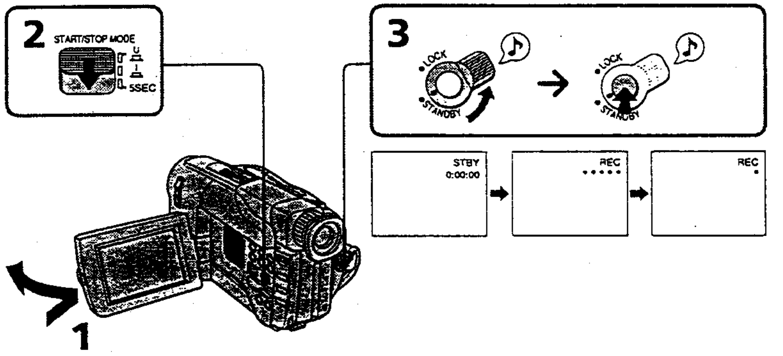
Su videocámara posee dos modos además del normal de inicio/parada. Estos modos le permitirán videofilmar una serie de tomas rápidas, lo que resultará en un vídeo alegre.

(1) Manteniendo presionada OPEN, abra la pantalla de cristal líquido.

(2) Ponga START STOP/MODE en el modo deseado.
⊻ : La grabación se iniciará cuando presione START/STOP, y se parará cuando vuelva a presionarla (modo normal).
⊥ : La videocámara solamente videofilmará mientras mantenga presionada START/STOP.
5SEC: Cuando presione START/STOP, la videocámara grabará durante 5 segundos y después se parará automáticamente.

(3) Gire STANDBY hacia arriba y presione START/STOP. Se iniciará la grabación.

Si ha seleccionado 5SEC, el indicador de cinta restante desaparecerá, y en el visor o en la pantalla de cristal líquido aparecerán cinco puntos. Los puntos desaparecerán con una velocidad de uno por segundo, como se muestra en la ilustración siguiente. Después de cinco segundos, cuando hayan desaparecido todos los puntos, la videocámara cambiará automáticamente al modo de espera.



To extend the recording time in 5SEC mode
Press START/STOP again before all the dots disappear. Recording continues for about 5 seconds from the moment you press START/STOP.

Notes on START/STOP mode
- If you have turned off the indicators on the LCD screen, the dots do not appear.
- You cannot use FADER in 5SEC or ⊥ mode.

Para prolongar el tiempo de videofilmación en el modo 5SEC
Vuelva a presionar START/STOP antes de que hayan desaparecido todos los puntos. La grabación continuará durante unos 5 segundos desde el momento en el que presionó START/STOP.

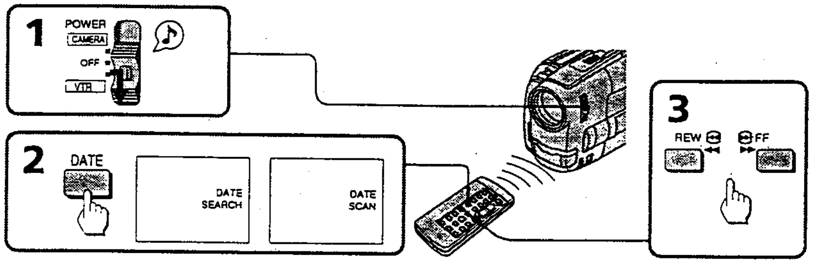
Notas sobre el modo de inicio/parada
- Si ha desactivado los indicadores de la pantalla de cristal líquido, los puntos no aparecerán.
- Usted no podrá utilizar FADER en el mode 5SEC o ⊥.

To scan the beginning of all days

(1) Set the POWER switch to VTR.
(2) Press DATE on the Remote Commander twice.
(3) Press ◀◀ or ▶▶. Date Scan starts.

Para buscar el comienzo de todos los días

(1) Ponga el selector POWER en VTR.
(2) Presione dos veces DATE del telemando.
(3) Presione ◀◀ o ▶▶. Se iniciará la exploración de fechas.



To stop searching or scanning
Press one of the following buttons: DATE, ▶, ■, ◀◀ or ▶▶.

If you do Date Search or Date Scan during playback
While the camcorder is looking for the date, a fast forward or rewind picture is displayed. Some noise is inevitable.

If you have erased or rewritten the index signal
The point at which the date changes may be out of position by about 10 seconds of playback.

To view pictures during searching or scanning
Press ▶ and then press ◀◀ or ▶▶.

Notes on Date Search and Date Scan mode

- If a day's recording is not longer than 2 minutes, the camcorder may not accurately find its boundaries.
- Date Search and Date Scan do not function on a tape recorded by a camcorder without the Data Code function.

Para parar la búsqueda o la exploración
Presione una de las teclas siguientes: DATE, ▶, ■, ◀◀ o ▶▶.

Si realiza la búsqueda de fechas o la exploración de fechas durante la reproducción
Mientras la videocámara esté buscando una fecha, se visualizarán imágenes avanzando o retrocediendo rápidamente. Es inevitable el que aparezca cierto ruido.

Si ha borrado o reescrito la señal de índice
Es posible que el punto en el que cambie la fecha esté fuera de su posición unos 10 segundos de reproducción.

Para contemplar imágenes durante la búsqueda o la exploración
Presione ▶, y después ◀◀ o ▶▶.

Notas sobre los modos de búsqueda de fechas y de exploración de fechas

- Si la grabación de un día no dura más de 2 minutos, la videocámara es posible que no encuentre con precisión sus límites.
- La búsqueda de fechas y la exploración de fechas no funcionarán con una cinta grabada con una videocámara que carezca de función de código de datos.

Returning to a pre-registered position

– CCD-TRV81 only

Using the Remote Commander, you can easily go back to the desired point on a tape after playback. Use the tape counter. If the RC time code appears, set COUNTER to NORMAL in the menu system to display the tape counter.

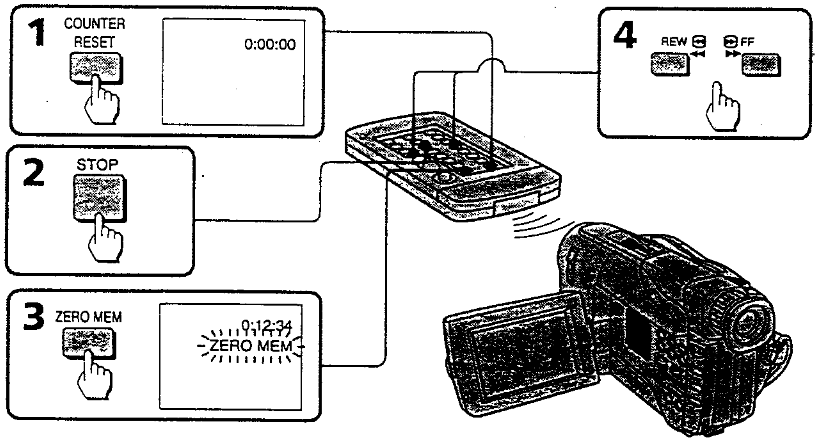
(1) During playback, press COUNTER RESET at the point you later want to locate. The counter shows "0:00:00".
(2) Press ■ when you want to stop playback.
(3) Press ZERO MEM on the Remote Commander. The ZERO MEM indicator flashes.
(4) Press ◀◀ to rewind or press ▶▶ to fast-forward the tape to the counter's zero point. The tape stops automatically when the counter reaches approximately zero.

Vuelta al punto previamente registrado

– CCD-TRV81 solamente

Utilizando el telemando, podrá volver fácilmente al punto deseado después de la reproducción. Emplee el contador de la cinta. Cuando aparezca el código de tiempo RC, ponga COUNTER en NORMAL en el sistema de menús para visualizar el contador de la cinta.

(1) Durante la reproducción, presione COUNTER RESET en el punto que desee localizar más tarde. El contador mostrará "0:00:00".
(2) Presione ■ cuando desee parar la reproducción.
(3) Presione ZERO MEM del telemando. El indicador ZERO MEM parpadeará.
(4) Presione ◀◀ para rebobinar la cinta, o ▶▶ para hacer que avance rápidamente hasta el punto cero del contador de la cinta. La cinta se parará automáticamente cuando el contador llegue aproximadamente a cero.



Notes on the tape counter

- Something must be recorded on the tape in order for the tape counter to function. Tape counter does not work on a blank tape.
- There may be a discrepancy of several seconds from the actual time.

Notas sobre el contador de la cinta

- Para que el contador funcione, deberá haber algo grabado en la cinta. El contador no trabajará con una cinta en blanco.
- Es posible que exista una diferencia de varios segundos entre el contador y el tiempo real.

Notes on ZERO MEM
- When you press ZERO MEM, the counter's zero point is memorized. Press ZERO MEM again before rewinding to cancel the memory.
- This function is canceled automatically once the tape is rewound or advanced to the point you pre-registered.
- You cannot set ZERO MEM during playing back.

Notas sobre ZERO MEM
- Cuando presione ZERO MEM, se memorizará el punto cero del contador. Para cancelar la memoria, vuelva a presionar ZERO MEM antes del bobinado.
- Esta función se cancelará automáticamente cuando la cinta se rebobine o avance hasta el punto previamente registrado.
- Usted no podrá ajuster ZERO MEM durante la reproducción.

Locating the marking position

– CCD-TRV81 only

You can locate the beginning of a desired program easily by marking an index signal during recording or playback and searching for it later.

Marking an index signal

You can mark an index signal during recording or playback.

When marking at the beginning of recording or playback

Press INDEX MARK on the Remote Commander in recording standby or playback pause mode. The INDEX MARK indicator appears in the viewfinder or the LCD screen with the MARK indicator flashing. When recording or playback starts, the MARK indicator stops flashing. This shows that the index signal is being marked. Then the INDEX MARK indicator will disappear.

Localización de puntos marcados

– CCD-TRV81 solamente

Usted podrá localizar fácilmente el comienzo del programa deseado marcando una señal de índice durante la grabación o la reproducción y buscándola más tarde.

Marcación de una señal de índice

Usted podrá marcar una señal de índice durante la grabación o la reproducción.

Marcación al comienzo de la grabación o la reproducción

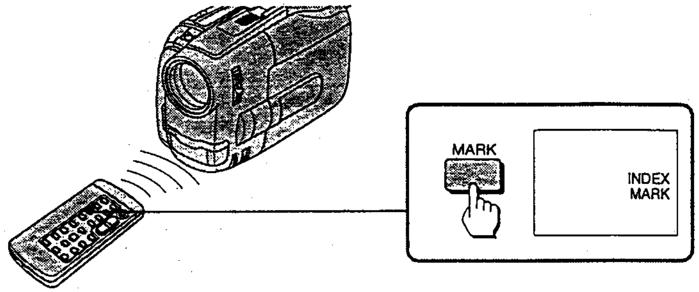
Presione INDEX MARK del telemando en el modo de grabación en espera o reproducción en pausa. En el visor o la pantalla de cristal líquido aparecerá el indicador INDEX MARK con el indicador MARK parpadeando. Cuando comience la grabación o la reproducción, el indicador MARK dejará de parpadear. Esto indicará que la señal de índice se está marcando. Después el indicador INDEX MARK desaparecerá.

When marking during recording or playback

Press INDEX MARK on the Remote Commander at the point you want to locate later.

Marcación durante la grabación o la reproducción

Presione INDEX MARK del telemando en el punto que desee localizar más tarde.



Notes on marking
- Make sure you mark index signals at more than two-minute intervals. Otherwise, you may not be able to search for them correctly.
- If you stop recording while the index signal is being marked (the INDEX MARK indicator lights in the viewfinder), the search may not be completed correctly.
- If you mark an index signal on the tape with the Data Code recorded, the Data Code will be erased at the point on which the index signal is marked. When playing back this tape, the camcorder keeps displaying the Data Code immediately before the erased one.
- A black band appears when you mark index signal during playback, and the sound cannot be heard. This does not affect the picture and sound that are already recorded.
- You cannot mark an index signal on a tape with the red mark on the cassette exposed.
- You cannot mark the index signal during 5-second recording, recording only while pressing the START/STOP button, or during fade-out.
- An index signal is marked automatically when you start recording with the POWER switch to VTR. When you start recording from recording pause mode, however, and index signal is not marked.

Notas sobre la marcación
- Asegúrese de marcar señales de índice con un intervalo de más de dos minutos. De lo contrario, es posible que no pueda localizarlas correctamente.
- Si para la grabación mientras esté marcándose una señal de índice (el indicador INDEX MARK aparece en el visor), es posible que la búsqueda no se realice correctamente.
- Si marca una señal de índice en una cinta con código de datos, el código se borrará en el punto donde se marque la señal de índice. Cuando reproduzca esta cinta, se visualizará el código de datos inmediatamente anterior al borrado.
- Cuando marque una señal de índice durante la reproducción, aparecerá una franja negra y el sonido no podrá oíse. Esto no afectará las imágenes ni el sonido ya grabados.
- Usted no podrá marcar una señal de índice cuando el videocassette tenga la marca roja al descubierto.
- Usted no podrá marcar la señal de índice durante la grabación de 5 segundos, la grabación presionando solamente la tecla START/STOP, ni durante el desvanecimiento.
- Cuando inicie la grabación con el selector POWER en VTR, se marcará automáticamente una señal de índice. Sin embargo, cuando inicie la grabación desde el modo de pausa, no se marcará señal de índice.

Scanning the beginning of each marking position – Index scan

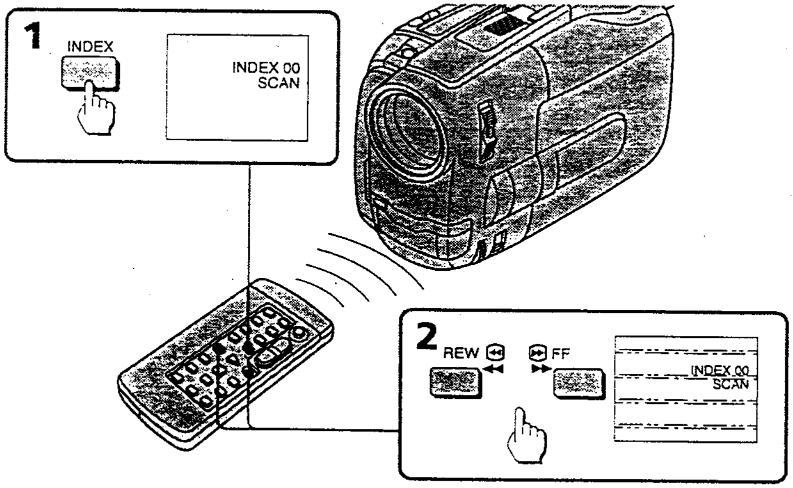
(1) Press INDEX on the Remote Commander during normal playback.

(2) Press ◀◀ or ▶▶. The tape rewinds or advances rapidly and plays back for approximately 10 seconds from the point on which the index signal was marked. If you want to continue playback, press ▶. When you do not press any button, the tape is automatically scanned to the next program.

Exploración del comienzo de cada punto marcado – Exploración de señales de índice

(1) Presione INDEX del telemando durante la reproducción normal.

(2) Presione ◀◀ o ▶▶. La cinta se rebobinará o avanzará rápidamente y se reproducirá durante unos 10 segundos desde el punto donde se haya marcado una señal de índice. Si desea continuar la reproducción, presione ▶. Si no presiona ninguna tecla, la videocámara explorará automáticamente el siguiente programa.



To cancel index scan mode
Press ▶. Normal playback resumes.

Para cancelar el modo de exploración de señales de índice
Presione ▶. Se reanudará la reproducción normal.

Locating the marking position

Localización de puntos marcados

Locating the desired marking position – Index search

(1) Press INDEX on the Remote Commander during stop or playback mode.

(2) Press INDEX repeatedly until the index number of the desired program is displayed in the viewfinder or on the LCD screen.

(3) Press ◀◀ or ▶▶. Playback starts from the beginning of the desired program.

[a] the current position
[b] the INDEX number

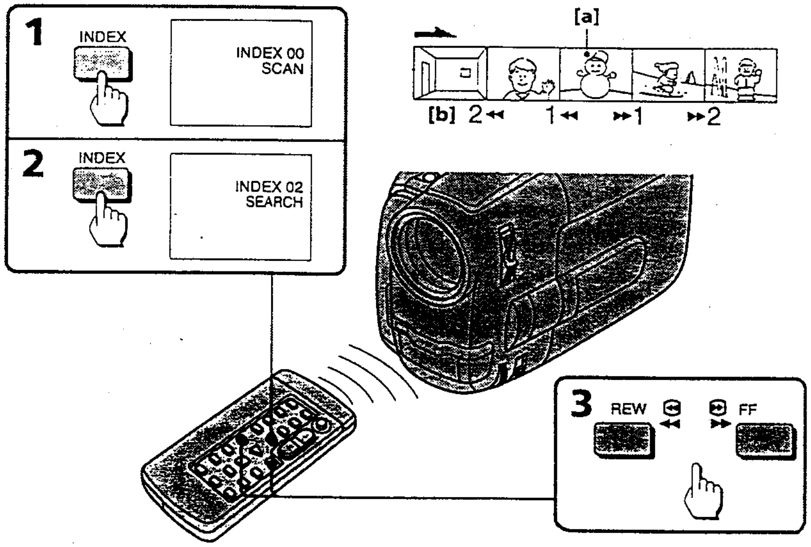
Exploración del comienzo de cada punto marcado – Exploración de señales de índice

(1) Presione INDEX del telemando durante el modo de parada o el reproducción.

(2) Presione repetidamente INDEX hasta que en el visor o la pantalla de cristal líquido aparezca el número de índice del programa deseado.

(3) Presione ◀◀ o ▶▶. La reproducción se iniciará desde el comienzo del programa deseado.

[a] posición actual
[b] número de índice



To stop index search mode
Press ▶. Normal playback resumes.

Note on the index number
The index number (1, 2, etc.) indicates the distance from the point you are now viewing [a], regardless of the direction.

Para canelar el modo de búsqueda de señales de índice
Presione ▶. Se reanudará la reproducción normal.

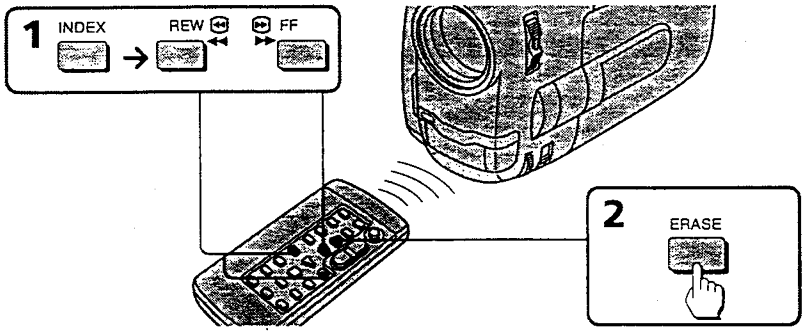
Nota sobre el número de índice
El número de índice (1, 2, etc.) indica la distancia desde el punto que esté viendo [a], independientemente del sentido.

Erasing an index signal

(1) Locate the index signal to be erased using the index scan or index search function.
(2) Press ERASE on the Remote Commander within 2 to 10 seconds while the desired program plays back. After the index signal is erased, the camcorder returns to index scan or index search mode, whichever was used in step 1.

Borrado de una señal de índice

(1) Localice la señal de índice que desee borrar con la función de exploración o la búsqueda de señales de índice.
(2) Presione ERASE del telemando antes de 2 a 10 segundos mientras esté reproduciéndose el programa deseado. Después de que la señal de índice se haya borrado, la videocámara volverá al modo de exploración o búsqueda de señales de índice, el que haya activado en el paso 1.



Notes on erasing
- Press ERASE more than 2 seconds after the playback of the desired program begins.
- You cannot erase the index signal on a tape with the red mark on the cassette exposed.
- While the index signal is being erased, the sound cannot be heard and a black band appears at the bottom of the picture. This will not affect the recorded sound or picture.
- The camcorder can detect index signals marked with VCRs, but may not erase them. VCRs with an index function can detect index signals marked with this camcorder but may not erase them.
- An index signal may be erased when making PCM after recording on another VCR in the portion where the index signal is marked.

Note on Data Code
When an index signal is erased, the Data Code on the same portion of the tape is also erased.

Notas sobre el borrado
- Mantenga presionada ERASE durante más de 2 segundos después de que haya comenzado la reproducción del programa deseado.
- Usted no podrá borrar señales de índice cuando el videocassette tenga la marca roja al descubierto.
- Mientras esté borrándose una señal de índice, el sonido no podrá oírse y aparecerá una franja negra en la parte inferior de la imagen. Esto no afectará el sonido ni las imágenes grabadas.
- La videocámara podrá detectar señales de índice marcadas en videograbadoras, pero quizás no pueda borrarlas. Las videograbadoras provistas de función de índice podrán detectar las señales de índice marcadas en esta videocámara, pero quizás no pueda borrarlas.
- Cuando una parte previamente grabada con señales de índice se convierta en PCM, es posible que las señales de índice se borren.

Nota sobre el código de datos
Cuando borre una señal de índice, se borrará también el código de datos del mismo punto.

Writing the RC Time code on a recorded tape

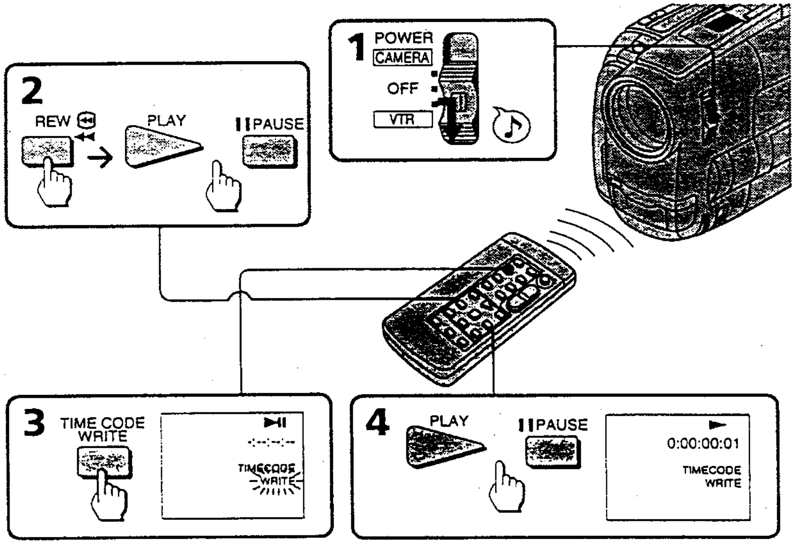
– CCD-TRV81 only

You can write the RC time code on a recorded tape. Use the Remote Commander.
Before you begin, we recommend to set COUNTER to TIME CODE in the menu system so that you can view the RC time code.
(1) While pressing the small green button on the POWER switch, set it to VTR.
(2) Rewind the tape to the beginning and set the camcorder to playback pause mode.
(3) Press TIME CODE WRITE on the Remote Commander. The TIME CODE WRITE indicator appears in the viewfinder or on the LCD screen with the WRITE indicator flashing.
(4) Press ► or ❚❚ to start playback. The WRITE indicator stops flashing and the RC time code writing starts from 0:00:00:00.

Escritura del código de tiempo RC en una cinta grabada

– CCD-TRV81 solamente

Usted podrá escribir el código de tiempo RC en una cinta grabada. Utilice el telemando.
Antes de comenzar, recomendamos que ajuste COUNTER a TIME CODE en el sistema de menús. Usted podrá ver el código de tiempo RC.
(1) Manteniendo presionado el pequeño botón verde en el selector POWER, deslícelo hasta VTR.
(2) Rebobine la cinta hasta su comienzo y ponga la videocámara en el modo de reproducción en pausa.
(3) Presione TIME CODE WRITE del telemando. En el visor o en la pantalla de cristal líquido aparecerá el indicador TIME CODE WRITE y parpadeará el indicador WRITE.
(4) Presione ► o ❚❚ para iniciar la reproducción. El indicador WRITE dejará de parpadear y el código de tiempo RC se escribirá desde 0:00:00:00.



To stop writing the RC time code
Press ■ (or any video control button).

Para cancelar la escritura del código de tiempo RC
Presione ■ (o cualquier tecla de control de video).

To write the RC time code from the end of the RC time code recorded portion

Rewind the tape to the portion on which the RC time code has been written and set the camcorder to playback pause mode. Then follow steps 3 and 4 above. The RC time code is written continuously.

Notes on writing the RC time code

- The RC time code writing stops when:
  - you press TIME CODE WRITE again before starting playback.
  - you press INDEX before starting playback.
  - you change from playback mode to another mode.
- When you are writing the RC time code from the middle of a tape without the time code written, writing starts several frames before the current picture.
- If you write the RC time code on a recorded tape, the Data Code is erased.
- Though you can mark the RC time code on a tape recorded both in LP mode and SP mode, the RC time code written in LP mode may not be read correctly.
- You cannot mark the RC time code on a tape with the red mark on the cassette exposed.
- A black band appears when you mark the RC time code during playback, and the sound cannot be heard. This does not affect the picture and sound that are already recorded.

Note on --:--:-- indicator

The --:--:-- indicator appears during playback if:

- nothing is recorded.
- the RC time code is unreadable because of the damage of the tape or because of the noise.
- you recorded using another VCR without RC time code function.

The --:--:-- indicator may also appear on the LCD screen during variable speed playback.

Para escribir el código de tiempo RC a partir del punto final de dicho código grabado

Rebobine la cinta hasta la parte en la que se haya escrito el código de tiempo RC y ponga la videocámara en el modo de reproducción en pausa. Después, realice los pasos 3 y 4 anteriores. El código de tiempo RC se escribirá continuamente.

Notas sobre la escritura del código de tiempo RC

- La escritura del código de tiempo RC se parará cuando:
  - presione nuevamente TIME CODE WRITE antes de iniciar la reproducción.
  - presione INDEX antes de iniciar la reproducción.
  - cambie del modo de reproducción a otro modo.
- Si escribe el código de tiempo RC desde el medio de una cinta sin dicho código, la escritura se iniciará a partir de algunos fotogramas antes de la imagen actual.
- Si escribe el código de tiempo RC en una cinta grabada, el código de datos se borrará.
- Aunque usted podrá marcar un código de tiempo RC en una cinta grabada tanto en el modo LP como en el modo SP, es posible que el código de tiempo RC escrito en el modo LP no se lea correctamente.
- Usted no podrá marcar el código de tiempo RC en un videocassette con la marca roja al descubierto.
- Cuando marque un código de tiempo RC durante la reproducción, aparecerá una franja negra, y no podrá oír el sonido. Esto no afectará las imágenes ni el sonido ya grabados.

Nota sobre el indicador --:--:--

El indicador --:--:-- aparecerá durante la reproducción si:

- no hay nada grabado.
- el código de tiempo no puede leerse debido a que la cinta está dañada o a ruido.
- grabó utilizando otra videograbadora sin función de código de tiempo RC.

El indicador --:--:-- puede aparecer también en la pantalla de cristal líquido durante la reproducción a velocidad variable.

Editing onto another tape

Edición en otra cinta

You can create your own video program by editing with any other 8 mm, Hi8, VHS, S-VHS, VHSC, S-VHSC or Betamax VCR that has video/audio inputs.

Usted podrá crear su propio programa de vídeo editando con cualquier otra videograbadora 8 mm, Hi8, VHS, S-VHS, VHSC, S-VHSC o Betamax que disponga de entradas de vídeo/audio.

Before editing

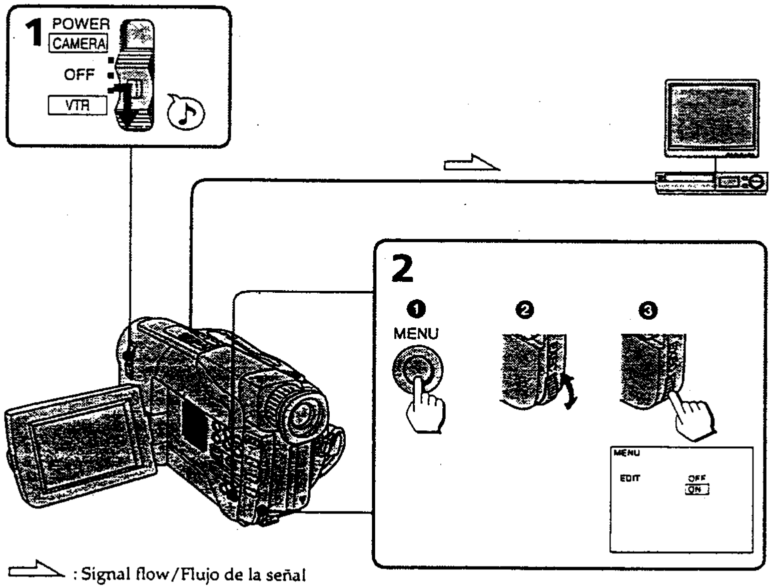
Connect the camcorder to the VCR using the supplied AV connecting cable.
Set the input selector on the VCR to LINE, if available.

(1) While pressing the small green button on the POWER switch, set it to VTR.
(2) Set EDIT to ON in the menu system.

Antes de editar

Conecte la videocámara a la videograbadora con el cable de audio/vídeo suministrado.
Ponga el selector de entrada de la videograbadora en LINE, si tiene esta posición.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, póngalo en VTR.
(2) Ponga EDIT en ON en el sistema de menús.



⇨ : Signal flow/Flujo de la señal

Starting editing

Turn down the volume of the camcorder while editing. Otherwise, picture distortion may occur.

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert your recorded tape into the camcorder.

(2) Play back the recorded tape on the camcorder until you locate the point where you want to start editing, then press **II** to set the camcorder in playback pause mode.

(3) On the VCR, locate the recording start point and set the VCR in recording pause mode.

(4) Press **II** on the camcorder and VCR simultaneously to start editing.

To edit more scenes

Repeat steps 2 to 4.

To stop editing

Press ☐ on both the camcorder and the VCR.

Note on Fine Synchro Edit

If you connect a video deck that has the Fine Synchro Edit feature to the LANC ⊄ jack of the camcorder, using a LANC cable (not supplied), the edit will be even more precise.

Inicio de la edición

Baje el volumen de la videocámara mientras edite. De lo contrario, es posible que la imagen se distorsione.

(1) Inserte un videocassette en blanco (u otro que desee regrabar) en la videograbadora e inserte el grabado en la videocámara.

(2) Reproduzca la cinta grabada en la videocámara hasta localizar el punto en el que desee comenzar la edición. Después presione **II** para power la videocámara en el modo de reproducción en pausa.

(3) En la videograbadora, localice el punto de inicio de la grabación y ponga la videograbadora en el modo de grabación en pausa.

(4) Presione simultáneamente **II** de la videograbadora para comenzar la edición.

Para editar más escenas

Repita los pasos 2 a 4.

Para parar la edición

Presione ☐ de la videocámara y la videograbadora.

Nota sobre la edición sincronizada precisa

Si ha conectado un equipo de vídeo que posea la función de edición sincronizada precisa al conector LANC ⊄ de la videocámara, utilizando un cable LANC (no suministrado), la edición será todavía más exacta.

Recording from a VCR or TV

Grabación de una videograbadora o un televisor

You can record a tape from another VCR or a TV program from a TV that has audio/video outputs. Connect the camcorder to the VCR or TV using the supplied AV cable. Turn down the volume of the camcorder while editing. Otherwise, picture distortion may occur.

(1) While pressing the small green button on the POWER switch, set it to VTR.

(2) Press ● REC and the button on the right together at the point where you want to start recording.

In recording and recording pause mode, S video and VIDEO/AUDIO jacks automatically work as input jacks.

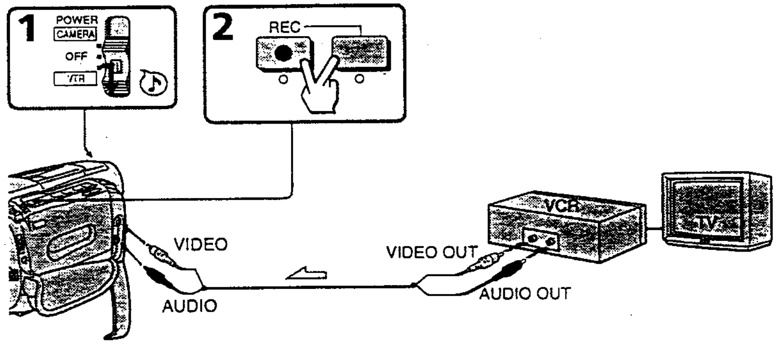
Ustedpodrá grabar una cinta de otra videograbadora o un programa de televisión de un televisor que posea salidas de audio/vídeo. Conecte la videocámara a la videograbadora o al televisor utilizando el cable de audio/vídeo suministrado. Durante la edición, reduzca el volumen de la videocámara. De lo contrario podrían distorsionarse las imágenes.

(1) Manteniendo presionado el pequeño botón verde del selector POWER, póngalo en VTR.

(2) Presione simultáneamente ● REC y la tecla situada a su izquierda en el punto en el que desee comenzar la grabación.

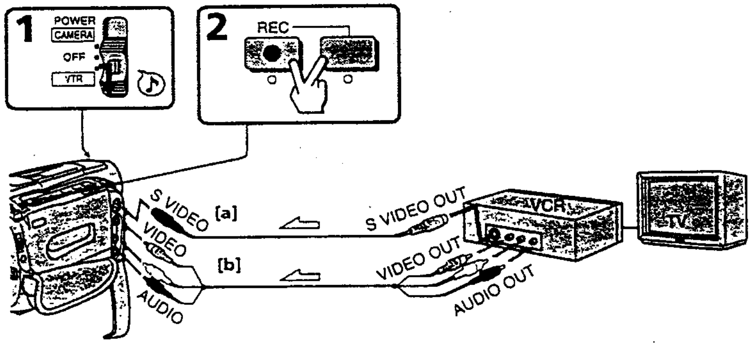
En el modo de grabación, o en el de grabación en pausa, las tomas vídeo S y VIDEO/AUDIO trabajarán automáticamente como tomas de entrada.

CCD-TRV31 **CCD-TRV31**



⊲ : Signal flow/Flujo de la señal

CCD-TRV41/TRV51/TRV81 **CCD-TRV41/TRV51/TRV81**



⊲ : Signal flow/Flujo de la señal

If your VCR or TV is a monaural type, connect only the white plug for audio on both the camcorder and the VCR or TV.
If your VCR or TV does not have an S VIDEO OUT jack, connecting cable **[b]**. Do not connect the S video cable (not supplied) **[a]** to the camcorder.
The CCD-TRV41/TRV51 does not have an S VIDEO jack.

To Check the Picture from a VCR or TV before Recording

Press **II** after pressing ● REC. You can check the picture in the viewfinder or on the LCD screen.

To Stop Recording

Press □.

Replacing recording on a tape – Insert Editing

– CCD-TRV81 only

You can insert a new scene from a VCR onto your originally recorded tape by specifying starting and ending points.
Connections are the same as in "Recording from a VCR or TV".

(1) While pressing the small green button on the POWER switch, set it to VTR.
(2) On the VCR, locate the start point to be inserted and set it to playback pause mode.
(3) On the camcorder, locate the point where the insert should end by pressing ◀◀ or ▶▶, then press **II** to set it to playback pause mode.
(4) Press COUNTER RESET to set the counter to zero.
(5) On the camcorder, locate the point where the insert should begin by pressing ◀◀, then press ● REC and **II** to set it to recording pause mode.
(6) Press ZERO MEM. The ZERO MEM indicator flashes and the end point of the insert is stored in memory.
(7) Press **II** on the camcorder and the VCR simultaneously to start insert editing.

The insert editing stops automatically near the zero point on the counter.

To change the end point

Press ZERO MEM so that the ZERO MEM indicator disappears and begin from step 3.

Note on the inserted picture

The picture may be distorted at the end of the inserted portion when it is played back.

Si su videograbadora o televisor es de tipo monoaural, conecte solamente la clavija blanca para audio en la videocámara y en la videograbadora o el televisor.
Si su videograbadora o televisor no posee toma S VIDEO OUT, conecte el cable **[b]**. No conecte un cable de vídeo S (no suministrado) **[a]** a la videocámara.
La CCD-TRV41/TRV51 no posee toma S VIDEO.

Para verificar la imagen de la videograbadora o el televisor antes de la grabación

Presione **II** después de haber presionado ● REC. Usted podrá verificar la imagen en el visor o en la pantalla LCD.

Para cesar la grabación

Presione □.

Cambio de grabación en una cinta (Edición con inserción)

– CCD-TRV81 solamente

Usted podrá insertar una nueva escena de una videograbadora en la cinta originalmente grabada, especificando los puntos de comienzo y finalización.
La conexión es igual que en "Grabación de una videograbadora o un televisor".

(1) Manteniendo presionado el pequeño botón verde del selector POWER, póngalo en VTR.
(2) En la videograbadora, localice el punto en el que desee iniciar la inserción y ponga la videograbadora en el modo de reproducción en pausa.
(3) En la videocámara, localice el punto de finalización de la inserción con las teclas ◀◀ y ▶▶, después presione **II** para poner la videocámara en el modo de reproducción en pausa.
(4) Presione COUNTER RESET para poner el contador a cero.
(5) En la videocámara, localice el punto en el que desee iniciar la inserción presionando ◀◀, después presione ● REC y **II** para ponerla en el modo de grabación en pausa.
(6) Presione ZERO MEM. El indicador ZERO MEM parpadeará y el punto de finalización de la inserción se almacenará en la memoria.
(7) Presione simultáneamente **II** de la videocámara y de la videograbadora para iniciar la edición con inserción.

La grabación con inserción se parará automáticamente cerca del punto cero del contador.

Para cambiar el punto de finalización

Presione ZERO MEM de forma que desaparezca el indicador ZERO MEM y comience desde el paso 3.

Nota sobre la imagen insertada

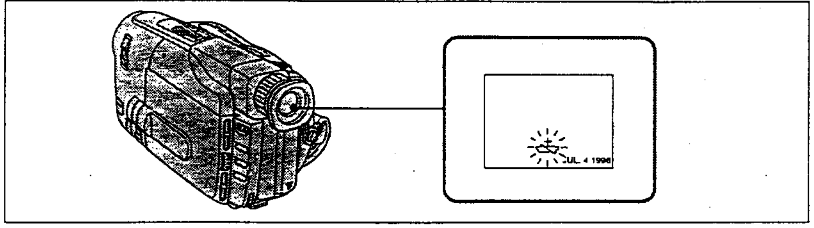
Es posible que las imágenes se distorsionen en el punto de finalización de la parte insertada cuando las reproduzca.

Changing the lithium battery in the camcorder

Your camcorder is supplied with a lithium battery installed. When the battery becomes weak or dead, the ☼ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 or Duracell DL-2025 lithium battery. Use of any other battery may present a risk of fire or explosion.**
The lithium battery for the camcorder lasts for about 1 year under normal operation. (The lithium battery that comes installed at the factory may not last 1 year.)

Cambio de la pila de litio de la videocámara

Su videocámara se suministra con una pila de litio instalada. Cuando la pila se debilite o agote, en el visor o en la pantalla de cristal líquido parpadeará el indicador ☼ durante unos 5 segundos cuando ponga el selector POWER en CAMERA. En este caso, **reemplace la pila por otra de litio CR2025 Sony o DL-2025 Duracell. La utilización de cualquier otra pila podría suponer el riesgo de incendio o explosión.**
La pila de litio para la videocámara durará aproximadamente 1 año en condiciones normales de funcionamiento. (La pila de litio instalada en fábrica en la videocámara puede que no dure 1 año.)

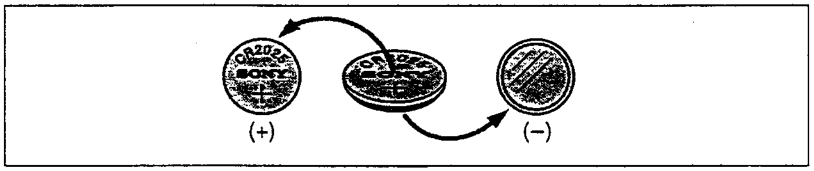


Note on lithium battery

The lithium battery has positive (+) side and negative (–) side as illustrated. **Be sure to insert the lithium battery with the positive side facing out.**

Nota sobre la pila de litio

La pila de litio tiene un lado positivo (+) y otro negativo (–) como se ilustra. **Asegúrese de colocar la pila con el lado positivo hacia afuera.**



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, or dispose of in fire.

Caution

Keep the lithium battery out of the reach of children. Should the battery be swallowed, consult a doctor immediately.

AVISO

La pila de litio puede explotar si no se trata adecuadamente. No la cargue, desarme ni tire al fuego.

Precaución

Mantenga la pila de litio fuera del alcance de los niños. Si alguien traga la pila, consulte inmediatamente a un médico.

Changing the lithium battery

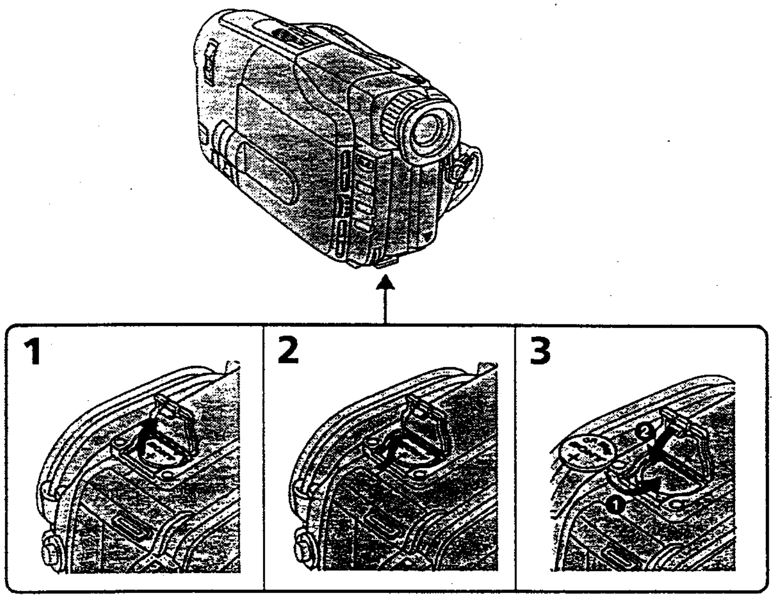
When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu system retained by the lithium battery.

(1) Open the lid of the lithium battery compartment.
(2) Push the lithium battery down once and pull it out from the holder.
(3) Install the lithium battery with the positive (+) side facing out. Close the lid.

Cambio de la pila de litio

Cuando reemplace la pila, mantenga la batería u otra fuente de alimentación conectada. De lo contrario, tendrá que volver a ajustar la fecha, la hora y otros ítemes en el sistema de menús.

(1) Abra la tapa del compartimiento de la pila de litio.
(2) Empuje una vez la pila de litio hacia abajo y sáquela del portapila.
(3) Coloque la pila nueva con el lado positivo (+) hacia afuera. Cierre la tapa.



Resetting the date and time

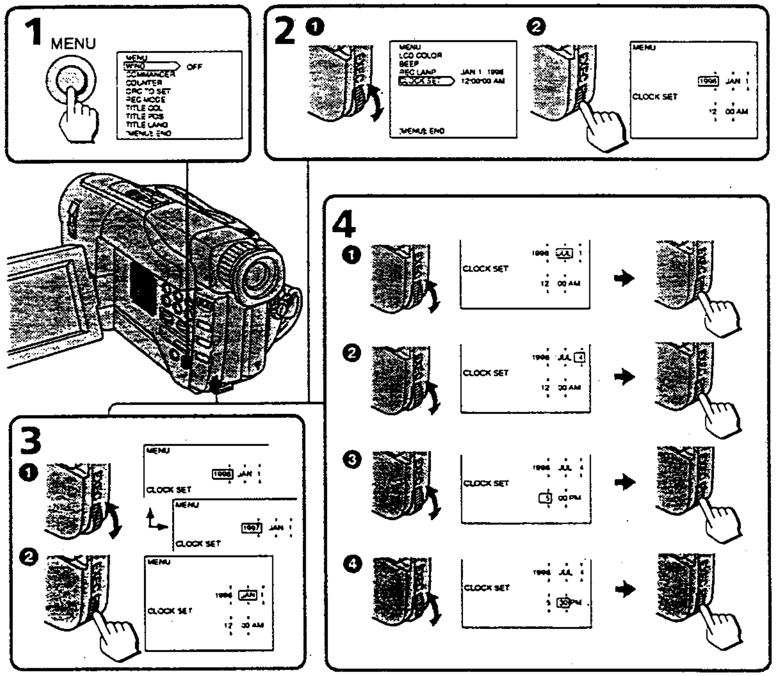
Reajuste de la fecha y la hora

You can reset the date and time in the menu system.

(1) Press MENU to display the menu.
(2) Turn the control dial to select CLOCK SET, then press the dial.
(3) Turn the control dial to select the desired year, then press the dial.
(4) Set the month, day, hour, and minutes by turning the control dial and pressing the dial.
(5) Press MENU to erase the menu display.

Usted podrá reajustar la fecha y la hora con el sistema de menús.

(1) Presione MENU para hacer que se visualice el menú.
(2) Gire el dial de control para seleccionar CLOCK SET, y después presione el dial.
(3) Gire el dial de control para seleccionar el año deseado, y después presione el dial.
(4) Ajuste el mes, el día, la hora, y los minutos girando el dial de control, y después presionándolo.
(5) Presione MENU para borrar la visualización del menú.



To correct the date and time setting

Repeat the above procedure.

Para corregir la fecha y la hora

Repita el procedimiento anterior.

To check the preset date and time

Press DATE to display the date indicator.
Press TIME to display the time indicator.
When you press the same button again, the indicator goes off.

The year changes as follows:

1996 ←→ 1997 ← .... → 2029

Note on the time indicator

The internal clock of this camcorder operates on a 12-hour cycle.

- 12:00 AM stands for midnight.
- 12:00 PM stands for noon.

Para comprobar la fecha y la hora preajustadas

Presione DATE para visualizar el indicador de la fecha. Presione TIME para visualizar el indicador de la hora. Cuando presione otra vez la misma tecla, el indicador desaparecerá.

El año cambiará de la forma siguiente:

1996 ←→ 1997 ← .... → 2029

Nota sobre el indicador de la hora

El reloj interno de la videocámara funcionará con el ciclo de 12 horas.

- 12:00 AM es medianoche.
- 12:00 PM es modiodía.

Usable cassettes and playback modes

Videocassettes utilizables y modos de reproducción

Selecting cassette types

– CCD-TRV81 only

This Hi8 system is an extension of the standard 8 mm system, and was developed for higher-quality pictures.
You can use Hi8 video and standard 8 mm cassettes. When you use a Hi8 video cassette, the recording is in the Hi8 system. When you use a standard 8mm cassette, the recording is in the standard 8 mm system. You cannot record on standard 8 mm cassettes in the Hi8 system.
If you are going to play back the tape using a standard 8mm video recorder/player, you should use standard 8 mm cassettes.

Selección del tipo de videocassette

– CCD-TRV81 solamente

Este sistema Hi8 es una mejora del sistema de 8 mm estándar, y fue desarrollado para ofrecer imágenes de mejor calidad.
Usted podrá utilizar videocassettes de Hi8 y de 8 mm estándar. Cuando utilice un videocassette de Hi8, la grabación se realizará según el sistema Hi8. Cuando use un videocassette de 8 mm estándar, la grabación se efectuará con el sistema de 8 mm estándar. Usted no podrá grabar videocassettes de 8 mm estándar en el sistema de Hi8.
Cuando vaya a reproducir una cinta en una videocámara o en una videograbadora de 8 mm estándar, deberá utilizar videocassettes de 8 mm estándar.

When you play back

The playback mode (SP/LP) and system (Hi8/standard 8 mm) are selected automatically according to the format in which the tape has been recorded. The quality of the recorded picture in LP mode, however, will not be as good as that in SP mode.

Note on AFM HiFi stereo – CCD-TRV41/TRV51/TRV81 only

When you play back a tape, the sound will be in monaural if:

- You record the tape using this camcorder, then play it back on an AFM HiFi monaural video recorder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on this camcorder.

Recording mode

When you play back a tape, the SP/LP indicator shows the recording mode SP/LP.

Foreign 8 mm video

Because the TV color systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to the list of "Using your camcorder abroad" to check the TV color system of foreign countries.

Cuando reproduzca una cinta

El modo de reproducción (SP/LP o Hi8/8 mm estándar) se seleccionará automáticamente de acuerdo con el formato en el que haya sido grabada la cinta. Sin embargo la calidad de la imagen grabada en el modo LP no será tan buena como en el modo SP.

Nota sobre el modo estéreo de alta fidelidad de AFM – CCD-TRV41/TRV51/TRV81 solamente

Cuando reproduzca la cinta, el sonido será monoaural si:

- Reproduce una cinta grabada en esta videocámara en una videograbadora monoaural de alta fidelidad de AFM.
- Reproduce en esta videocámara una cinta grabada en una videograbadora monoaural de alta fidelidad de AFM.

Modo de grabación

Cuando reproduzca una cinta, el indicador SP/LP mostrará el modo de grabación, SP o LP.

Videocassettes de 8 mm del extranjero

Como los sistemas de color de televisión difieren de país a país, no podrá reproducir cintas grabadas en el extranjero. Con respecto al sistema de color de televisión de otros países, consulte "Utilización de la videocámara en el extranjero".

Tips for using the battery pack

Consejos para utilizar la batería

This section shows you how you can get the most out of your battery pack.

En esta sección se indica la forma de obtener el máximo rendimiento de su batería.

Preparing the battery pack

Always carry additional batteries

Have sufficient battery pack power to do 2 to 3 times as much recording as you have planned.

Battery life is shorter in a cold environment

Battery efficiency is decreased, and the battery will be used up more quickly, if you are recording in a cold environment.

Preparación de la batería

Lleve siempre baterías de repuesto

Prepare suficientes baterías como para poder alimentar la videocámara el doble o el triple del tiempo de videofimación planeado.

La duración de la batería se acortará en climas fríos

La eficacia de la batería disminuirá y se consumirá con mayor rapidez si videofilma en climas fríos.

Tips for using the battery pack

Consejos para utilizar la batería

To save battery power

Turn STANDBY down when not recording to save battery power.
A smooth transition between scenes can be made even if recording is stopped and started again. While you are positioning the subject, selecting an angle, or looking through the viewfinder lens or on the LCD screen, the lens moves automatically and the battery is used. The battery is also used when a tape is inserted or removed.

When to replace the battery pack

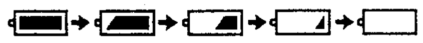
While you are using your camcorder, the remaining battery indicator in the viewfinder or on the LCD screen decreases gradually as battery power is used up.
When you use "InfoLITHIUM" battery, the remaining time (minutes) appears before the remaining battery indication.

Ahorro de energía de la batería

Gire STANDBY de la videocámara hacia abajo cuando no videofilme para ahorrar energía de la batería.
Aunque detenga y reinicie la videofilmación, obtendrá una grabación sin transiciones bruscas entre las escenas. Cuando enfoque el motivo, seleccione un ángulo, o mire a través del visor o a la pantalla de cristal líquido, el objetivo se moverá automáticamente y la batería se consumirá. La batería también se empleará cuando inserte o extraiga un videocassette.

Cuándo reemplazar la batería

Mientras emplee la videocámara, el indicador de capacidad restante de la batería en del visor o la pantalla de cristal líquido disminuirá gradualmente según se descargue la batería.
Cuando utilice la batería "InfoLITHIUM", el tiempo restante (minutos) aparecerá antes de la indicación de batería restante.



When the remaining battery indicator reaches the lowest point, the ▭ indicator appears and starts flashing in the viewfinder or on the LCD screen.
When you use the NP-F530/F730 battery, the ▭ indicator may flash even if there are still 5 to 10 minutes of charge remaining.
When the ▭ indicator in the viewfinder changes from slow flashing to rapid flashing while you are recording, set the POWER switch to OFF on the camcorder and replace the battery pack. Leave the tape in the camcorder to obtain a smooth transition between scenes after the battery pack has been replaced.

Cuando el indicador de capacidad restante de la batería alcance el punto más bajo, el indicador ▭ aparecer y comenzar a parpadear en el visor o la pantalla de cristal líquido. Cuando utilice la batería NP-F530/F730, el indicador ▭ puede parpadear incluso aunque queden de 5 a 10 minutos de carga restante.
Cuando el indicador ▭ del visor cambie de parpadeo lento a rápido mientras esté videofilmando, deslice el selector POWER de la videocámara hasta OFF y reemplace la batería. Deje la cinta en la videocámara para obtener una transición suave entre las escenas después de haber reemplazado la batería.

Notes on the rechargeable battery pack

Caution

Never leave the battery pack in temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.

The battery pack heats up

During charging or recording, the battery pack heats up. This is caused by energy that has been generated and a chemical change that has occurred inside the battery pack. This is not cause for concern and is normal.

Notas sobre la batería

Precaución

Nunca deje la batería a temperaturas superiores a los 60°C, como en un automóvil aparcado al sol o bajo la luz solar directa.

La batería se calienta

Durante la carga o la grabación, la batería se calentará. Esto se debe a la energía que se genera y al cambio químico que se produce en el interior de la batería. Esto no es motivo de preocupación, es normal.

Tips for using the battery pack

Consejos para utilizar la batería

About InfoLITHIUM batteries

The InfoLITHIUM is a lithium ion battery pack which can exchange data with compatible video equipment about its battery consumption. Sony recommends that you use the InfoLITHIUM battery pack with video equipment having the ⓘ InfoLITHIUM mark.

When you use this battery pack with video equipment having the ⓘ InfoLITHIUM mark, the video equipment will indicate the remaining battery time in minutes*. However, if you use it with video equipment not having this mark, the remaining battery capacity will not be indicated in minutes.

* The indication may not be accurate depending on the condition and environment which the equipment is used under. If the indication is not accurate, use the battery pack completely and then charge it fully. The indication will become accurate. However, the indication may not become accurate if you use or leave the battery pack in a warm place for a long time, or after you have used the battery pack many times.

Battery pack care

- **Remove the battery pack form the camcorder after using it,** and keep it in a cool place. When the battery pack is installed to the camcorder, a small amount of current flows to the camcorder even if the POWER switch is set to OFF. This shortens battery life.
- The battery pack is always discharging even when it is not in use after charging. Therefore, you should charge the battery pack right before using the camcorder.

The switch on the battery pack

This switch is provided so that you can mark the charged battery pack. Set the switch to the "green mark" position when charging is completed. (When removed from the charging adaptor, the switch exposes the green mark. When removed from your camcorder, no mark is indicated.)

Sobre las baterías InfoLITHIUM

La batería InfoLITHIUM es una batería de iones de litio que puede intercambiar datos con equipos de vídeo compatibles sobre su consumo de energía.
Sony recomienda utilizar la batería InfoLITHIUM con equipos de vídeo que posean la marca ⓘ InfoLITHIUM.

Cuando utilice esta batería con un equipo de vídeo que posea la marca ⓘ InfoLITHIUM, el equipo de vídeo indicará la duración restante de la batería en minutos*. Sin embargo, si la utiliza con un equipo que no posea esta marca, la capacidad restante de la batería no se indicará en minutos.

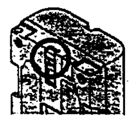
* La indicación puede no ser precisa dependiendo de las condiciones y el medio ambiente de utilización del equipo. Si la indicación no es precisa, utilice por completo la batería y después cárguela completamente. La indicación volverá a ser precisa. Sin embargo, Sin embargo, la indicación puede no resultar precisa si utiliza o deja la batería en un lugar cálido durante mucho tiempo, o después de haberla utilizado muchas veces.

Cuidados de la batería

- **Extraiga la batería de la videocámara después de haberla empleado,** y guárdela en un lugar fresco. Cuando la batería esté instalada en la videocámara, fluirá una pequeña cantidad de corriente a pesar de que el selector POWER de la videocámara esté en OFF. Esto reducirá la duración de la batería.
- La batería se descarga continuamente, incluso cuando no se utilice después de haberla cargado. Por lo tanto, deberá cargar la batería justo antes de emplear la videocámara.

Señalador de la batería

Este señalador sirve para marcar la batería cargada. Póngalo en la posición de la "marca verde" cuando termine de cargar la batería (Cuando quite la batería del cargador, el señalador mostrará la marca verde. Cuando la extraiga de la videocámara, no aparecerá ninguna marca.)



The life of the battery pack

If the battery indicator flashes rapidly just after turning on the camcorder with a fully charged battery pack, the battery pack should be replaced with a new fully charged one.

Charging temperature

You should charge batteries at temperatures from 10°C to 30°C (50°F to 86°F). Lower temperatures require a longer charging time.

Notes on charging

A brand-new battery pack

A brand-new battery pack is not charged. Before using the battery pack, charge it completely.

Recharge the battery pack whenever you like

You do not have to discharge it before recharging. If you charged the battery pack fully but you did not use it for a long time, it becomes discharged. Then recharge the battery pack before use.

Notes on the terminals

If the terminals (metal parts on the back) are not clean, the battery charge duration will be shortened.
When the terminals are not clean or when the battery pack has not been used for a long time, repeatedly install and remove the battery pack a few times. This improves the contact condition. Also, wipe the + and – terminals with a soft cloth or paper.

Be sure to observe the following

- Keep the battery pack away from fire.
- Keep the battery pack dry.
- Do not open nor try to disassemble the battery pack.
- Do not expose the battery pack to any mechanical shock.

Duración útil de la batería

Si el indicador de estado de la batería parpadea rápidamente después de conectar la alimentación de la videocámara con una batería completamente cargada, ésta deberá reemplazarse por otra nueva completamente cargada.

Temperatura de carga

Las baterías deberán cargarse a temperaturas compredidas entre 10 y 30°C. A bajas temperaturas, el tiempo de carga se prolongará.

Notas sobre la carga

Batería nueva

Las baterías nuevas no están cargadas. Antes de utilizar una, cárguela por completo.

Cargue la batería cuando lo desee

No será necesario descargar la batería antes de cargarla. Si ha cargado completamente la batería pero no la utiliza durante mucho tiempo, ésta se descargará. Cargue la batería antes de emplearla.

Notas sobre los terminales

Si los terminales (partes metálicas del lado posterior) no están limpios, la duración de la batería se acortará.
Cuando los terminales no estén limpios o cuando no haya empleado la batería durante mucho tiempo, instale y extraiga repetidamente la batería. Esto mejorará el contacto. Además, limpie los terminales + y – con un papel o un paño suave.

Tenga en cuenta los puntos siguientes

- Mantenga la batería alejada del fuego.
- Mantenga la batería seca.
- No abra ni modifique la batería.
- No exponga la batería a ningún golpe mecánico.

Maintenance information and precautions

Moisture condensation

If the camcorder is brought directly from a cold place to a warm place, moisture may condense inside the camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or the unit may not operate correctly. To prevent possible damage under these circumstances, the camcorder is furnished with moisture sensors. Please, take the following precautions.

Inside the camcorder

If there is moisture inside the camcorder, the beep sounds and the 💧 indicator flashes. If this happens, none of the functions except cassette ejection will work. Open the cassette compartment, turn off the camcorder, and leave it about 1 hour. When ⏏ indicator flashes at the same time, the cassette is inserted in the camcorder. Eject the cassette, turn off the camcorder, and leave also the cassette about 1 hour. The camcorder can be used again if the 💧 indicator does not appear when the power is turned on again.

On the lens

If moisture condenses on the lens, no indicator appears, but the picture becomes dim. Turn off the power and do not use the camcorder for about 1 hour.

How to prevent moisture condensation

When bringing the camcorder from a cold place to a warm place, put the camcorder in a plastic bag and allow it to adapt to room conditions over a period of time.

(1) Be sure to tightly seal the plastic bag containing the camcorder.
(2) Remove the bag when the air temperature inside it has reached the temperature surrounding it (after about 1 hour).

Información sobre el mantenimiento y precauciones

Condensación de humedad

Si traslada directamente la videocámara de un lugar frío a otro cálido, es posible que se condense humedad en su interior, en la superficie de la cinta, o en el objetivo.
En estas condiciones, la cinta puede adherirse al tambor de cabezas y estropearse, o la videocámara puede no funcionar adecuadamente. Para evitar la posibilidad de daños en estas circunstancias, la videocámara dispone de sensores de humedad. Sin embargo, tome las precauciones siguientes.

En el interior de la videocámara

En el interior de la videocámara
Cuando se haya condensado humedad en el interior de la videocámara, sonará un pitido y parpadeará el indicador 💧. Cuando suceda esto, no trabajará ninguna función, excepto la de expulsión del videocassette. Abra el compartimiento del videocassette, desconecte la alimentación de la videocámara, y déjela así durante 1 hora. Si también parpadea el indicador ⏏, habrá un videocassette insertado en la videocámara. Extráigalo, desconecte la alimentación de la videocámara, y déjela así, con el videocassette insertado, durante aproximadamente 1 hora. La videograbadora podrá volver a utilizarse si el indicador 💧 no aparece cuando vuelva a conectar la alimentación.

En el objetivo

Si se condensa humedad en el objetivo, no aparecerá ningún indicador, pero las imágenes se difuminarán.
Desconecte la alimentación y deje sin utilizar la videocámara durante aproximadamente 1 hora.

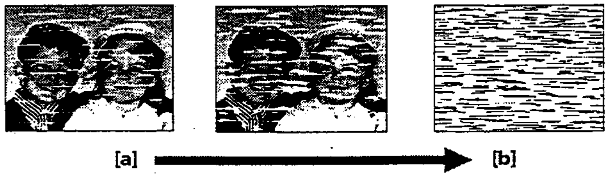
Cómo prevenir la condensación de humedad

Antes de trasladar la videocámara de un lugar frío a otro cálido, métala en una bolsa de plástico y deje que se adapte a las condiciones de la sala durante cierto tiempo.

(1) Cerciórese de sellar bien la bolsa de plástico.
(2) Saque la videocámara de la bolsa cuando la temperatura del aire del interior haya alcanzado la temperatura ambiental (después de aproximadamente 1 hora).

Video head cleaning

To ensure normal recording and clear pictures, clean the video heads. When the ⊗ indicator and "📼 CLEANING CASSETTE" message appear one after another in the viewfinder or playback pictures are "noisy" or hardly visible, the video heads may be dirty.



[a] Slightly dirty
[b] Very dirty

If this happens, clean the video heads with the Sony V8-25CLH cleaning cassette (not supplied). After checking the picture, if it is still "noisy," repeat the cleaning. (Do not repeat cleaning more than 5 times in one session.)

Caution

Do not use a commercially available wet-type cleaning cassette. It may damage the video heads.

Note

If the V8-25CLH cleaning cassette is not available in your area, consult your nearest Sony dealer.

Limpieza de las cabezas de vídeo

Para asegurar la grabación normal e imágenes claras, limpie las cabezas de vídeo. Cuando el indicador ⊗ y el mensaje "📼 CLEANING CASSETTE"aparezcan uno tras otro, o cuando las imágenes de reproducción sean "ruidosas" o apenas se vean, es posible que las cabezas de vídeo estén sucias.

[a] Ligeramente sucias
[b] Muy sucias

Cuando suceda esto, limpie las cabezas de vídeo con un cassette limpiador V8-25CLH Sony (no suministrado). Después de haber comprobado las imágenes, si siguen siendo "ruidosas" repita la limpieza. (No repita la limpieza más de 5 veces en una sesión.)

Precaución

No utilice cassettes limpiadores de tipo húmedo, de venta en establecimientos del ramo. Estos cassettes podrían dañara las cabezas de vídeo.

Nota

Si no puede adquirir el cassette de limpieza V8-25CLH en su zona, consulte a su proveedor Sony.

Maintenance information and precautions

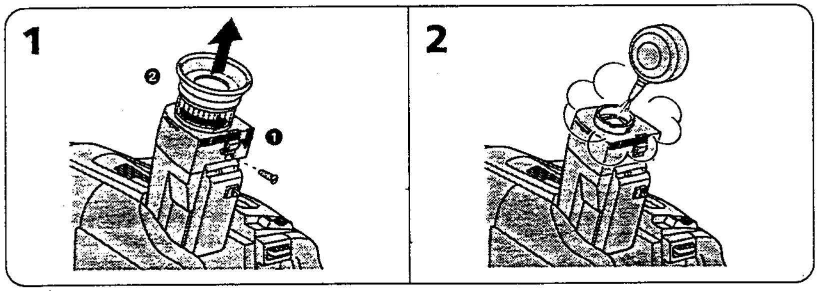
Información sobre el mantenimiento y precauciones

Removing dust from inside the viewfinder

(1) Remove the screw with a screwdriver (not supplied). Then, while sliding the RELEASE knob, turn the eyecup in the direction of the arrow and pull it out.
(2) Clean the surface with a commercially available blower.

Eliminación del polvo del interior del visor

(1) Quite el tornillo con un destornillador (no suministrado). Después, deslizando el mando RELEASE, gire el ocular en el sentido de la flecha y tire del mismo.
(2) Limpie la superficie con un soplador adquirido en un establecimiento del ramo.

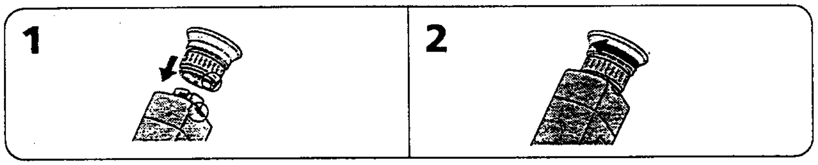


To reattach the eyecup

(1) Align the groove on the eyecup with the • mark on the barrel.
(2) Turn the eyecup in the direction of the arrow. Then replace the screw.

Para volver a instalar el ocular

(1) Alinee la ranura del ocular con la marca • del barril.
(2) Gire el ocular en el sentido de la flecha. Después coloque el tornillo.



Precautions

Camcorder operation

- Operate the camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this manual.
- Should any solid object or liquid get inside the casing, unplug the camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.

Precauciones

Operación de la videocámara

- Alimente la videocámara con 7,2 V (batería) u 8,4 V (adaptador de alimentacion de CA).
- Para alimentarla con CC o con CA, utilice los accesorios recomendados en este manual.
- Si dentro de la videocámara entra algún objeto sólido o líquido, desenchúfela y haga que sea comprobada por su proveedor Sony antes de volver a utilizarla.
- Evite manejar la videocámara con rudeza y exponerla a golpes. Tenga especial cuidado con el objetivo.

- Keep the POWER switch set to OFF when not using the camcorder.
- Do not wrap up the camcorder and operate it since heat may build up internally.
- Keep the camcorder away from strong magnetic fields or mechanical vibration.
- Do not push the LCD screen.
- If the camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using the camcorder, the back of the LCD screen may heat up. This is not a malfunction.

On handling tapes

Do not insert anything in the small holes on the rear of the cassette. These holes are used to sense the type of tape, thickness of tape and if the recording tab is in or out.

Camcorder care

- When the camcorder is not to be used for a long time, disconnect the power source and remove the tape. Periodically turn on the power, operate the camera and player sections and play back a tape for about 3 minutes.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on it, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- If fingerprints or debris make the LCD screen dirty, we recommend using a LCD Cleaning Kit (not supplied) to clean the LCD screen.

- Cuando no vaya a utilizar la videocámara, mantenga el selector POWER en OFF.
- No utilice la videocámara envuelta porque podría recalentarse internamente.
- Mantenga la videocámara alejada de campos magnéticos intensos y de vibraciones mecánicas.
- No empuje la pantalla de cristal líquido.
- Si utiliza la videocámara en un lugar frío, es posible que en la pantalla de cristal líquido aparezca una imagen residual. Esto no significa mal funcionamiento.
- Cuando utilice la videocámara, la parte posterior de la pantalla de cristal líquido puede calentarse. Esto no significa mal funcionamiento.

Manejo de los videocassettes

No inserte nada en los pequeños orificios de la parte posterior del videocassette. Estos orificios se utilizan para detectar el tipo de cinta, su grosor, y si la lengüeta está deslizada o no.

Cuidados de la videocámara

- Cuando no vaya a utilizar la videocámara durante mucho tiempo, desconecte la fuente de alimentación y extraiga el videocassette. Conecte periódicamente la alimentación, ponga en funcionamiento las secciones de videocámara y reproductor, y reproduzca una cinta durante unos 3 minutos.
- Limpie el objetivo con un cepillo suave para quitar el polvo. Si hay huellas dactilares, elimínelas con un paño suave.
- Limpie el cuerpo de la videocámara con un paño suave y seco, o con un paño suave ligeramente humedecido en una solución poco concentrada de detergente. No utilice ningún tipo de disolvente, ya que podría dañar el acabado.
- Si las huellas dactilares o las manchas han ensuciado la pantalla de cristal líquido, recomendamos utilizar un juego de limpieza de pantallas de cristal líquido (no suministrado) para limpiarla.

Maintenance information and precautions

Información sobre el mantenimiento y precauciones

AC power adaptor

Charging

- Use only a lithium ion type battery pack.
- Place the battery pack on a flat surface without vibration during charging.
- The battery pack will get hot during charging. This is normal.

Others

- Unplug the unit from the wall outlet when not in use for a long time. To disconnect the power cord, pull it out by the plug. Never pull the cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the AC power cord forcibly, or put a heavy object on it. This will damage the cord and may cause a fire or electrical shock.
- Be sure that nothing metallic comes into contact with the metal parts of the connecting plate. If this happens, a short may occur and the unit may be damaged.
- Always keep the metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment because it will disturb AM reception and video operation.
- The unit becomes warm while in use. This is normal.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

If any difficulty should arise, unplug the unit and contact your nearest Sony dealer.

Adaptador de CA

Carga

- Utilice solamente una batería de tipo iones de litio.
- Cargue la batería sobre una superficie plana y sin vibraciones.
- La batería se calentará durante la carga. Esto es normal.

Otros

- Cuando no vaya a utilizar la unidad durante mucho tiempo, desenchúfela de la red. Para desconectar el cable de alimentación, tire del enchufe. No tire nunca del propio cable.
- No utilice la unidad con el cable de alimentación dañado, si la ha dejado caer, o si está dañada.
- No doble a la fuerza el cable de alimentación a la fuerza, ni coloque ningún objeto pesado sobre él. Esto podría dañara el cable de alimentación y provocar incendios o descargas eléctricas.
- Cerciórese de que ningún objeto metálico entre en contacto con las partes metálicas (contactos) de la placa conectora. En caso contrario, podría producirse un cortocircuito que dañaría la unidad.
- Mantenga siempre limpios los contactos metálicos.
- No desarme la unidad.
- No golpee ni deje caer la unidad.
- Cuando esté utilizando la unidad, especialmente durante la carga, manténgala alejada de receptores de AM y de equipos de vídeo porque podría interferir en la recepción de AM y en la operación de dichos equipos de vídeo.
- La unidad se calentará cuando esté en funcionamiento. Esto es normal.
- No coloque la unidad en lugares:
  - Extremadamente cálidos o fríos
  - Polvorientos o sucios
  - Muy húmedos
  - Con vibraciones

Si se produce cualquier problema, desenchufe la unidad y póngase en contacto con su proveedor Sony.

Using your camcorder abroad

Each country has its own electric and TV color systems. Before using your camcorder abroad, check the following points.

Power sources

You can use your camcorder in any country with the supplied AC power adaptor within 110 V to 240 V AC, 50/60 Hz.

Difference in color systems

This camcorder is an NTSC system based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV.
Check the following list.

NTSC system countries
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system countries
Australia, Austria, Belgium, China, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system country
Brazil

PAL-N system countries
Argentina, Paraguay, Uruguay

SECAM system countries
Bulgaria, Czech Republic, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Slovak Republic, Ukraine, etc.

Utilización de la videocámara en el extranjero

Cada país posee sus propios sistemas eléctrico y de televisión en color. Antes de utilizar su videocámara en el extranjero, compruebe los puntos siguientes.

Fuentes de alimentación

Usted podrá utilizar su videocámara en cualquier país con el adaptador de CA suministrado con 110 a 240 V CA, 50/60 Hz.

Diferencias en los sistema de color

Esta videocámara está basada en el sistema NTSC. Si desea contemplar las imágenes de reproducción en un televisor, éste deberá estar basado en el sistema NTSC.
Compruebe la lista siguiente.

Países con el sistema NTSC
Bolivia, Canadá, Centroamérica, Colombia, Corea, Chile, Ecuador, EE.UU., Filipinas, Islas Bahamas, Jamaica, Japón, México, Perú, Surinam, Taiwan, Venezuela, etc.

Países con sistema PAL
Alemania, Australia, Austria, Bélgica, China, Dinamarca, España, Finlandia, Gran Bretaña, Holanda, Hong Kong, Italia, Kuwait, Malasia, Noruega, Nueva Zelanda, Portugal, Singapur, Suecia, Suiza, Tailandia, etc.

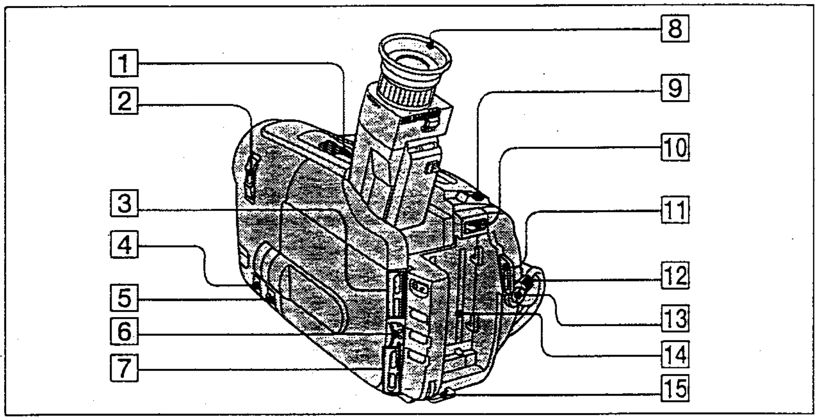
País con el sistema PAL-M
Brasil

País con el sistema PAL-N
Argentina, Paraguay, Uruguay

Países con sistema SECAM
Bulgaria, Francia, Guayana, Hungría, Irán, Iraq, Mónaco, Polonia, República checoslovaca, República eslovaca, Rusia, Ucrania, etc.

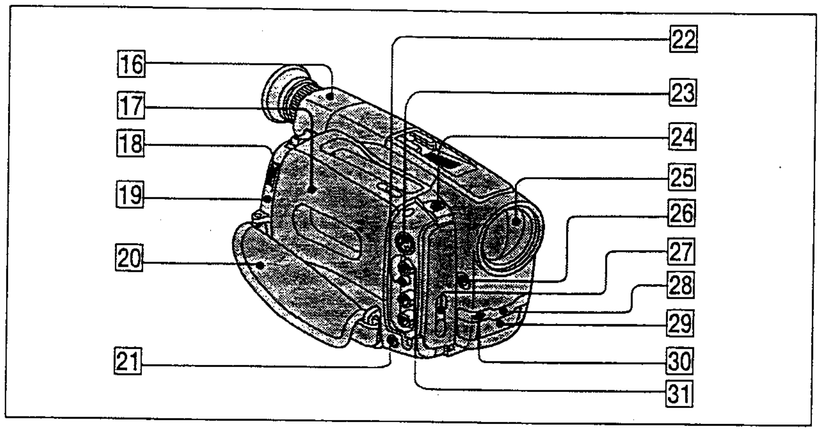
Identifying the parts

Identificación de las partes



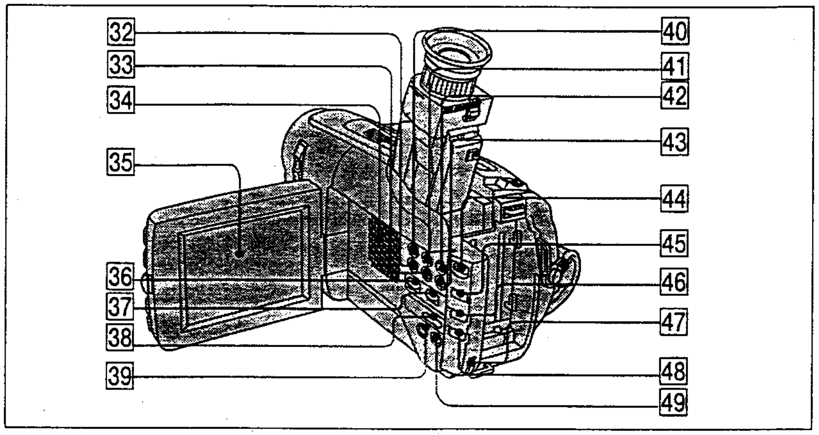
1 **Intelligent accessory shoe** (p. 110)
2 **POWER switch** (p. 14)
3 **LCD BRIGHT buttons** (p. 19)
4 **FAR/NEAR dial** (p. 46)
5 **FOCUS switch** (p. 46)
6 **OPEN button** (p. 19)
7 **VOLUME buttons** (p. 25)
8 **Eyecup**
9 **Power zoom lever** (p. 17)
10 **BATT (Battery release) lever** (p. 12)
11 **Hook for shoulder strap** (p. 108)
12 **STANDBY switch** (p. 14)
13 **START/STOP button** (p. 14)
14 **Battery mounting surface**
15 **Hook for shoulder strap** (p. 108)

1 **Zapata para accesorios inteligente** (pág. 110)
2 **Selector de alimentación (POWER)** (pág. 14)
3 **Teclas de ajuste del brillo (LCD BRIGHT)** (pág. 19)
4 **Dial de alejamiento/acercamiento (FAR/NEAR)** (pág. 46)
5 **Selector de enfoque (FOCUS)** (pág. 46)
6 **Tecla de apertura (OPEN)** (pág. 19)
7 **Teclas de volumen (VOLUME)** (pág. 25)
8 **Ocular**
9 **Palanca del zoom motorizado** (pág. 17)
10 **Palanca de expulsiónde la batteria (BATT)** (pág. 12)
11 **Gancho para la bandolera** (pág. 108)
12 **Interruptor de espera (STANDBY)** (pág. 14)
13 **Tecla de inicio/parada (START/STOP)** (pág. 14)
14 **Superficie de montaje de la batería**
15 **Gancho para la bandolera** (pág. 108)



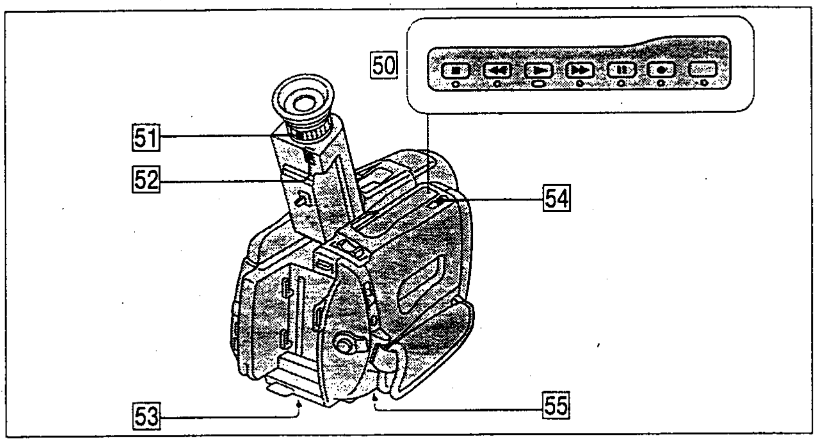
16 **Viewfinder** (p. 15)
17 **Cassette compartment** (p. 13)
18 **EJECT switch** (p. 13)
19 **LANC Ⓛ control jack**
Ⓛ stands for Local Application Control Bus System. The Ⓛ control jack is used for controlling the tape transport of video equipment and peripherals connected to it. This jack has the same function as the jack indicated as CONTROL L or REMOTE.
20 **Grip strap** (p. 20)
21 **∩ (headphones) jack** (CCD-TRV41/TRV51/TRV81 only) (p. 26)
◎ earphone jack (CCD-TRV31 only) (p. 26)
22 **RFU DC OUT (RFU adaptor DC output) jack** (p. 63)
23 **S VIDEO jack** (CCD-TRV81 only) (p. 62)
24 **Front START/STOP button** (p. 21)
25 **Lens cover**
26 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.
27 **Front power zoom button** (p. 21)
28 **Remote sensor** (p. 108)
Aim the Remote Commander here for remote control.
29 **Microphone**
30 **Camera recording/battery lamp** (p. 14)
31 **VIDEO/AUDIO jacks** (p. 62)

16 **Visor** (pág. 15)
17 **Compartimiento del videocassette** (pág. 13)
18 **Mando de expulsión (EJECT)** (pág. 13)
19 **Toma de control remoto (LANC Ⓛ)**
Ⓛ significa sistema de control de bus de aplicación local. La toma Ⓛ se utiliza para controlar el movimiento de la cinta de equipos de vídeo y de dispositivos periféricos conectados a la misma. Esta toma posee la misma función que los conectores indicados como CONTROL L o REMOTE.
20 **Correa de la empuñadura** (pág. 20)
21 **Toma para auriculares (∩)** (CCD-TRV41/TRV51/TRV81 solamente) (pág. 26)
Toma para auricular (◎) (CCD-TRV31 solamente) (pág. 26)
22 **Toma de salida de CC para el adaptador de RF (RFU DC OUT)** (pág. 63)
23 **Toma para vídeo S (S VIDEO)** (CCD-TRV81 solamente) (pág. 62)
24 **Tecla de inicio/parada (START/STOP) frontal** (pág. 21)
25 **Tapa del objetivo**
26 **Toma para micrófono (MIC) alimentado a través de la clavija (PLUG IN POWER)**
Conéctele un micrófono externo (no suministrado). Esta toma acepta también un micrófono de "alimentación a través de la clavija".
27 **Tecla del zoom motorizado** (pág. 21)
28 **Sensor de control remoto** (pág. 108)
Apunte hacia él con el telemando.
29 **Micrófono**
30 **Lámpara indicadora de videofilmación/estado de la batería** (pág. 14)
31 **Tomas de audio/vídeo (VIDEO/AUDIO)** (pág. 62)



32 **DATE button** (p. 29, 59)
33 **TIME button** (p. 29, 59)
34 **Speaker** (p. 25)
35 **LCD screen** (p. 19)
36 **STEADY SHOT switch** (CCD-TRV41/TRV81 only) (p. 52)
37 **START/STOP MODE switch** (p. 60)
38 **PICTURE EFFECT button** (p. 45)
39 **TITLE button** (p. 53)
40 **DISPLAY button** (p. 26)
41 **END SEARCH button** (p. 30)
42 **16:9 WIDE button** (CCD-TRV41/TRV51/TRV81 only) (p. 43)
43 **COUNTER RESET button** (p. 16)
44 **FADER button** (p. 40)
45 **BACK LIGHT button** (p. 41)
46 **PROGRAM AE button** (p. 49)
47 **Control dial** (p. 34)
48 **EXPOSURE button** (p. 51)
49 **MENU button** (p. 34)

32 **Tecla de ajuste de la fecha (DATE)** (pág. 29, 59)
33 **Tecla de ajuste de la hora (TIME)** (pág. 29, 59)
34 **Altavoz** (pág. 25)
35 **Pantalla de cristal líquido** (pág. 19)
36 **Selector de videofilmación estable (STEADY SHOT)** (CCD-TRV41/TRV81 solamente) (pág. 52)
37 **Selector de modo de inicio/parada (START/STOP MODE)** (pág. 60)
38 **Tecla selectora de efectos de imagen (PICTURE EFFECT)** (pág. 45)
39 **Tecla selectora de título (TITLE)** (pág. 53)
40 **Tecla selectora de visualización (DISPLAY)** (pág. 26)
41 **Tecla de búsqueda de fin (END SEARCH)** (pág. 30)
42 **Tecla selectora de pantalla amplia (16:9 WIDE)** (CCD-TRV41/TRV51/TRV81 solamente) (pág. 43)
43 **Tecla de puesta a cero del contador (COUNTER RESET)** (pág. 16)
44 **Tecla de aumento gradual/desvanecimiento (FADER)** (pág. 40)
45 **Tecla de videofilmación a contraluz (BACK LIGHT)** (pág. 41)
46 **Tecla selectora de exposición automática programada (PROGRAM AE)** (pág. 49)
47 **Dial de control** (pág. 34)
48 **Tecla de ajuste de la exposición (EXPOSURE)** (pág. 51)
49 **Tecla selectora de menú (MENU)** (pág. 34)



㊿ **Video control buttons** (p. 25)
□ STOP (stop)
◀◀ REW (rewind)
▷ PLAY (playback)
▶▶ FF (fastforward)
❚❚ PAUSE (pause)
● REC (recording)

(51) **Viewfinder lens adjustment ring** (p. 15)

(52) **Eyecup RELEASE knob** (p. 88)

(53) **Lithium battery compartment** (p. 79)

(54) **EDITSEARCH button** (p. 23)

(55) **Tripod receptacle** (p. 21)

㊿ **Teclas de control de video** (pág. 25)
Parada (□ STOP)
Rebobinado (◀◀ REW)
Reproducción (▷ PLAY)
Avance rápido (▶▶ FF)
Pausa (❚❚ PAUSE)
Grabación (● REC)

(51) **Anillo de ajuste de la lente del visor** (pág. 15)

(52) **Mando de liberación del ocular (RELEASE)** (pág. 88)

(53) **Compartimiento de la pila de litio** (pág. 79)

(54) **Tecla de búsqueda para edición (EDITSEARCH)** (pág. 23)

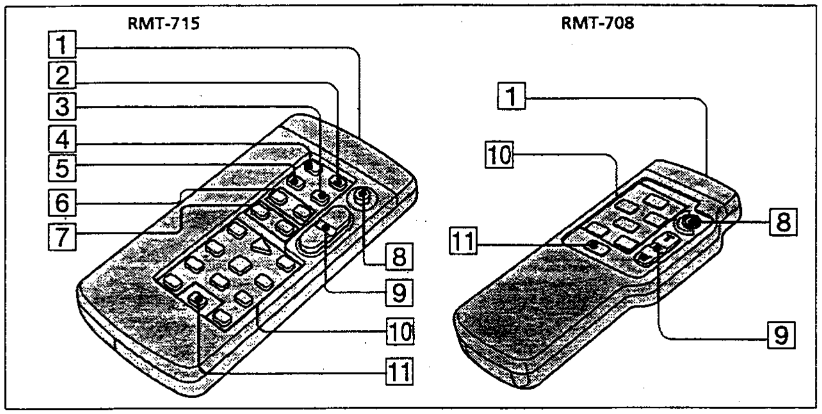
(55) **Rosca para trípode** (pág. 21)

Remote Commander

The buttons that have the same name on the Remote Commander as on the camcorder function identically.

Telemando

Las teclas del telemando con la misma marca que las de la videocámara poseen idéntica función.



① **Transmitter**
Point toward the remote sensor to control the camcorder after turning on the camcorder.

② **ZERO MEM button** (p. 58, 66)

③ **DATA CODE button** (p. 29)

④ **COUNTER RESET button**

⑤ **TIME CODE WRITE button** (p. 72)

⑥ **INDEX buttons**
INDEX MARK button (p. 67)
INDEX ERASE button (p. 71)

⑦ **DATE SEARCH button** (p. 65)
INDEX SEARCH button (p. 70)

⑧ **START/STOP button**

⑨ **Power zoom button**

⑩ **Video control buttons**

⑪ **DISPLAY button**

① **Transmisor**
Apunte con él hacia el sensor remoto para controlar la videocámara después de haber conectado la alimentación de la misma.

② **Tecla de memorización del punto cero (ZERO MEM)** (pág. 58, 66)

③ **Tecla de código de datos (DATA CODE)** (pág. 29)

④ **Tecla de puesta a cero del contador (COUNTER RESET)**

⑤ **Tecla de escritura de códigos de tiempo (TIME CODE WRITE)** (pág. 72)

⑥ **Teclas de índice (INDEX)**
Tecla de marcación de señales de índice (INDEX MARK) (pág. 67)
Tecla de borrado de señales de índice (INDEX ERASE) (pág. 71)

⑦ **Tecla de búsqueda de fechas (DATE SEARCH)** (pág. 65)
Tecla de búsqueda de señales de índice (INDEX SEARCH) (pág. 70)

⑧ **Tecla de inicio/parada (START/STOP)**

⑨ **Tecla del zoom motorizado**

⑩ **Telas de control de vídeo**

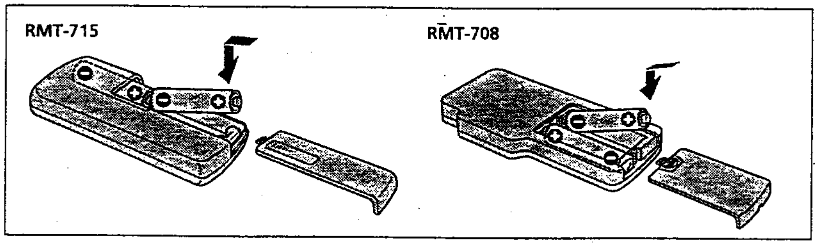
⑪ **Tecla selectora de visualización (DISPLAY)**

To prepare the Remote Commander

Insert two R6 (size AA) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.

Preparación del telemando

Inserte dos pilas R6 (tamaño AA) haciendo coincidir + y – de las mismas con el diagrama del interior del compartimiento de las pilas.



Note on battery life

The batteries for the Remote Commander last about 6 months under normal operation. When the batteries become weak or dead, the Remote Commander does not work.

To avoid damage from possible battery leakage

Remove the batteries when you will not use the Remote Commander for a long time.

To use the Remote Commander

Make sure that the COMMANDER is set to ON in the menu system on the camcorder.

Nota sobre las pilas

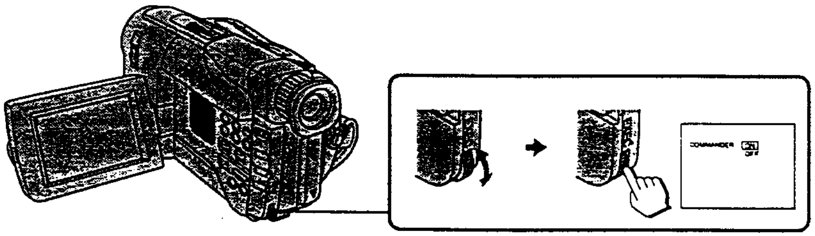
Las pilas del telemando durarán aproximadamente unos 6 meses en funcionamiento normal. Cuando las pilas se debiliten o se agoten, el telemando no trabajará.

Para evitar el daño que podría causar el electrólito de las pilas

Cuando no vaya a utilizar el telemando durante mucho tiempo, extráigale las pilas.

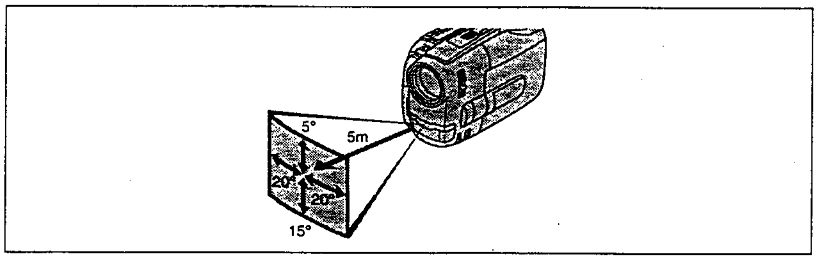
Para utilizar el telemando

Cerciórese de que COMMANDER del sistema de menús de la videocámara esté en ON.



Remote control direction

Orientación y alcance del telemando



Notes on the Remote Commander

- Keep the remote sensor away from strong light sources such as direct sunlight or illumination. Otherwise, the remote control may not be effective.
- Be sure that there is no obstacle between the remote sensor on the camcorder and the Remote Commander.
- This camcorder works in commander mode VTR 2. The commander modes (1, 2 and 3) are used to distinguish this camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in commander mode VTR 2, we recommend you change the commander mode or cover the remote sensor of the VCR with black paper.

Notas sobre el telemando

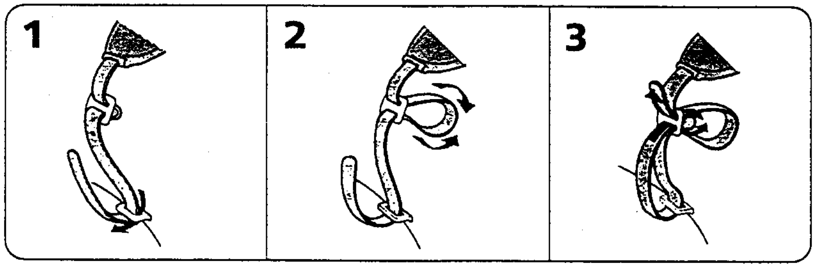
- Mantenga el sensor de control remoto alejado de fuentes de iluminación intensa, como la luz solar directa o luces intensas. De lo contrario, es posible que no pudiese controlar a distancia la videocámara.
- Cerciórese de que no haya obstáculos entre el sensor de control remoto de la videocámara y el telemando.
- Esta videocámara funciona con un telemando de modo VTR2. Los modos de control remoto (1, 2, y 3) se utilizan para diferenciar esta videocámara de videograbadoras Sony a fin de evitar problemas de control remoto. Cuando vaya a utilizar una videograbadora Sony en el modo de control remoto VTR2, le recomendamos que cambie el modo de control remoto o que cubra el sensor de control remoto de la videograbadora con un papel negro.

Attaching the shoulder strap

Attach the supplied shoulder strap to the hooks for the shoulder strap .

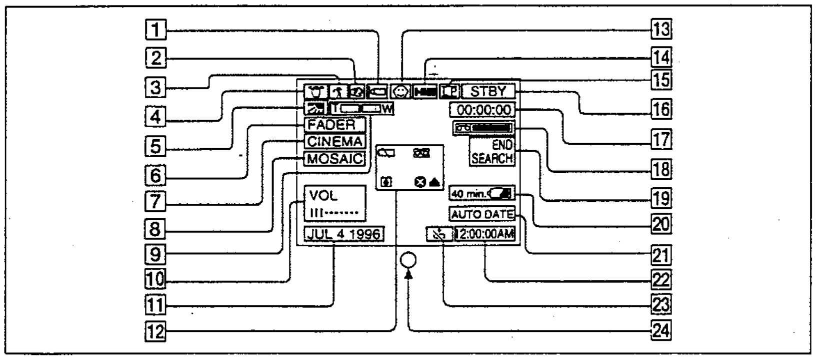
Colocación de la bandolera

Fije la bandolera suministrada en los ganchos para la misma.



Operation indicators

Indicadores de operación



- [1] **WIND indicator** (CCD-TRV41/TRV51/TRV81 only) (p. 35)
- [2] **Manual focusing** (p. 46)
- [3] **PROGRAM AE indicator** (p. 48)
- [4] **Steady Shot indicator** (CCD-TRV41/TRV81 only) (p. 52)
- [5] **Backlight indicator** (p. 41)
- [6] **FADER indicator** (p. 39)
- [7] **Wide mode indicator** (CCD-TRV41/TRV51/TRV81 only) (p. 42)
- [8] **PICTURE EFFECT indicator** (p. 45)
- [9] **Exposure indicator** (p. 50)/ **Zoom indicator** (p. 17)
- [10] **LCD BRIGHT indicator** (p. 19)/**VOLUME indicator** (p. 25)
- [11] **Data Code indicator** (CCD-TRV81 only) (p. 29)
- [12] **Warning indicators** (p. 111)
- [13] **Mirror mode indicator** (p. 38)
- [14] **Playing back or recording in Hi8 format** (CCD-TRV81 only) (p. 81)
- [15] **Lights up when playing recording or playing back a tape recorded in LP mode.** (p. 16, 82)
- [16] **Video control mode** (p. 25)
- [17] **Tape counter/RC time code indicator** (CCD-TRV81 only) (p. 66)
- [18] **Remaining tape indicator**
  ▬▬ → ▭▬ → ▭ → 5min → 0min

- [1] **Indicador de viento (WIND)** (CCD-TRV41/TRV51/TRV81 solamente) (pág. 35)
- [2] **Enfoque manual** (pág. 46)
- [3] **Indicador de exposición automática programada (PROGRAM AE)** (pág. 48)
- [4] **Indicador de videofilmación estable** (CCD-TRV41/TRV81 solamente) (pág. 52)
- [5] **Indicador de contraluz** (pág. 41)
- [6] **Indicador de aumento gradual/ desvanecimiento (FADER)** (pág. 39)
- [7] **Indicador de modo de pantalla amplia** (CCD-TRV41/TRV51/TRV81 solamente) (pág. 42)
- [8] **Indicador de efectos de imagen (PICTURE EFFECT)** (pág. 45)
- [9] **Indicador de exposición** (pág. 50) / **Indicador del zoom** (pág. 17)
- [10] **Indicador de brillo del visualizador de cristal líquido (LCD BRIGHT)** (pág. 19)/ **Indicador de volumen (VOLUME)** (pág. 25)
- [11] **Indicador de código de datos** (CCD-TRV81 solamente) (pág. 29)
- [12] **Indicadores de advertencia** (pág. 111)
- [13] **Indicador de modo de espejo** (pág. 38)
- [14] **Reproducción o grabación en el formato Hi8** (CCD-TRV81 solamente) (pág. 81)
- [15] **Se encenderá cuando reproduzca una cinta grabada en el modo LP.** (pág. 16, 82)
- [16] **Modo de control de vídeo** (pág. 25)
- [17] **Indicador del contador de la cinta/código de tiempo RC** (CCD-TRV81 solamente) (pág. 66)
- [18] **Indicador de cinta restante**
  ▬▬ → ▭▬ → ▭ → 5min → 0min

- [19] **Index indicator/Date search/Date scan indicator/ TIME CODE WRITE indicator / ZERO MEM indicator** (CCD-TRV81 only) (p. 65, 66, 72)
  END SEARCH indicator (p. 24)
- [20] **Remaining battery indicator**
  ▮▮▮ → ▮▮ → ▮ → ▯ → ▭
- [21] **AUTO DATE indicator** (CCD-TRV31/TRV41/TRV51 only) (p. 17)
- [22] **Date or Time indicator** (p. 59)
- [23] **Lithium battery indicator** (p. 78)
- [24] **Recording lamp/Battery lamp** (p. 14)

To watch the demonstration

You can watch a brief demonstration of pictures with special effects. If the demonstration appears when you turn on the camcorder for the first time, exit the Demo mode to use your camcorder.
To enter Demo mode, (1) Eject the cassette and set the POWER switch to OFF. **(2)** Turn STANDBY up. **(3)** While holding down ▷, set the POWER switch to CAMERA. The demonstration starts. The demonstration stops when you insert the cassette.
Note that once you enter Demo mode, this mode is retained as long as the lithium battery is in place. Therefore, demonstration starts automatically 10 minutes later every time you set the POWER switch to CAMERA, and after you eject the cassette.
To exit Demo mode, (1) Set the POWER switch to OFF. **(2)** Turn STANDBY up. **(3)** While holding down □, set the POWER switch to CAMERA.

Note on the intelligent accessory shoe
The intelligent accessory shoe supplies power to optional accessories such as a video light or microphone. The intelligent accessory shoe is linked to the STANDBY switch, allowing you to turn on and off the power supplied by the shoe. Refer to the instruction manual of the accessory for further information. To connect an accessory, press down and push it to the end, and then tighten the screw. To remove an accessory, loosen the screw, and then press down and pull out the accessory.

- [19] **Indicador de señal de índice/búsqueda de fechas/exploración de fechas/indicador de escritura de códigos de tiempo (TIME CODE WRITE)/indicador de memorización del punto cero (ZERO MEM)** (CCD-TRV81 solamente) (pág. 65, 66, 72)
  Indicador de búsqueda de fin (END SEARCH) (pág. 24)
- [20] **Indicador de batería restante**
  ▮▮▮ → ▮▮ → ▮ → ▯ → ▭
- [21] **Indicador de fechador automático (AUTO DATE)** (CCD-TRV31/TRV41/TRV51 solamente) (pág. 17)
- [22] **Indicador de fecha u hora** (pág. 59)
- [23] **Indicador de pila de litio** (pág. 78)
- [24] **Lámpara indicadora de videofilmación/ estado de la batería** (pág. 14)

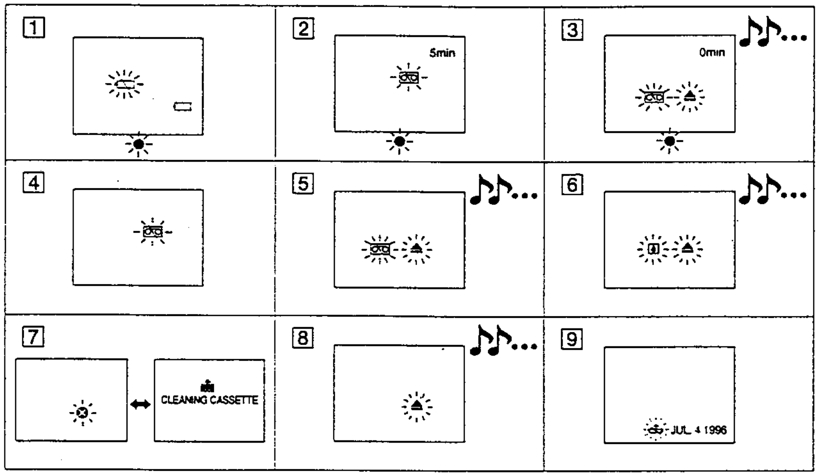
Para contemplar la demostración

Usted podrá contemplar una breve demostración de imágenes con efectos especiales. Si la demostración aparece cuando conecte por primera vez la alimentación de la videocámara, salga del modo de demostración a fin de utilizar la videocámara.
Para entrar en el modo de demostración, (1) Extraiga el videocassette y ponga el selector POWER en OFF. **(2)** Gire STANDBY hacia arriba. **(3)** Manteniendo pulsada ▷ ponga el selector POWER en CAMERA. Se iniciará la demostración. La demostración se parará cuando inserte un videocassette.
Tenga en cuenta que, después de haber entrado en el modo de demostración, este modo se mantendrá mientras haya una pila de litio insertada. Por lo tanto, la demostración se iniciará automáticamente 10 minutos después de haber puesto el selector POWER en CAMERA, y después de haber extraído el videocassette.
Para salir del modo de demostración, (1) Ponga el selector POWER en OFF. **(2)** Gire STANDBY hacia arriba. **(3)** Manteniendo pulsada □, ponga el selector POWER en CAMERA.

Nota sobre la zapata para accesorios inteligente
La zapata para accesorios inteligente suministrará alimentación a accesorios opcionales tales como una lámpara para vídeo o un micrófono. La zapata para accesorios inteligente está enlazada con el interruptor STANDBY, lo que le permitirá conectar y desconectar la alimentación suministrada por la zapata. Para más información, consulte el manual de instrucciones del accesorio.
Para conectar un accesorio, presiónelo hacia abajo, empújelo hasta el final, y después apriete el tornillo.
Para extraer el accesorio, afloje el tornillo, presiónelo hacia abajo, y después deslícelo hacia afuera.

Warning indicators

If indicators flash in the viewfinder or in the display window, check the following:
♪: you can hear the beep sound when the BEEP is set to ON.



1 **The battery is weak or dead.**
Slow flashing: The battery is weak.
Fast flashing: The battery is dead.

2 **The tape is near the end.**
The flashing is slow.

3 **The tape has run out.**
The flashing becomes rapid.

4 **No tape has been inserted.**

5 **The tab on the tape is out (red).**

6 **Moisture condensation has occurred.**

7 **The video heads may be contaminated.**
This indicator appears only on the viewfinder.

8 **Some other trouble has occurred.**
Disconnect the power source and contact your Sony dealer or local authorized facility.

9 **The lithium battery is weak or is not installed.**

Indicadores de advertencia

Si en el visor o en la pantalla de cristal líquido parpadean indicadores, compruebe lo siguiente:
♪: Si BEEP está ajustado a ON, oirá pitidos.

1 **La batería está débil o agotada.**
Parpadeo lento: La batería está débil.
Parpadeo rápido: La batería está agotada.

2 **La cinta está a punto de finalizar.**
El parpadeo es lento.

3 **La cinta ha finalizado.**
El parpadeo es rápido.

4 **No hay videocassette insertado.**

5 **La lengüeta del videocassette está deslizada hacia afuera (rojo)**

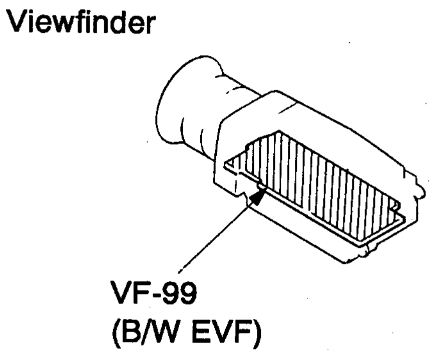
6 **Se ha producido condensación de humedad.**

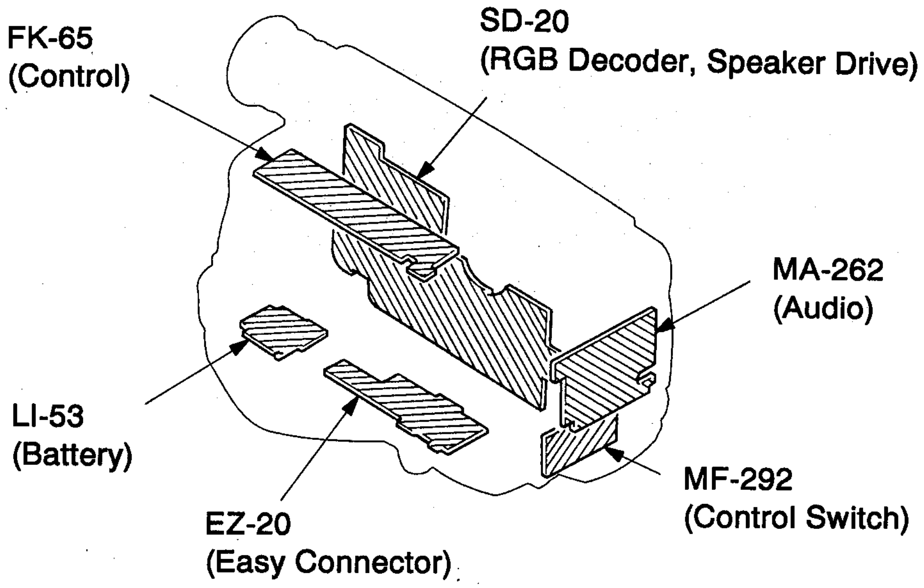
7 **las cabezas de vídeo pueden estar contaminadas.**
Este indicador solamente aparecerá en el visor.

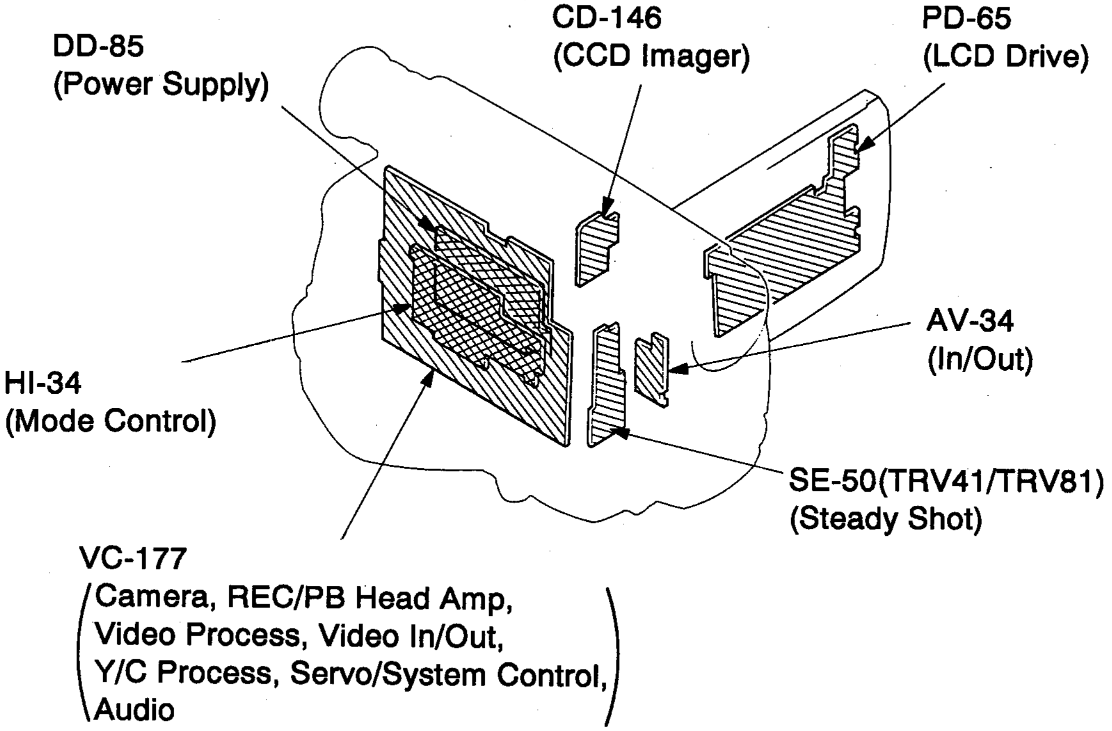
8 **Se ha producido algún problema.**
Desconecte la fuente de alimentación y póngase en contacto con su proveedor Sony o con un taller de reparaciones autorizado por Sony.

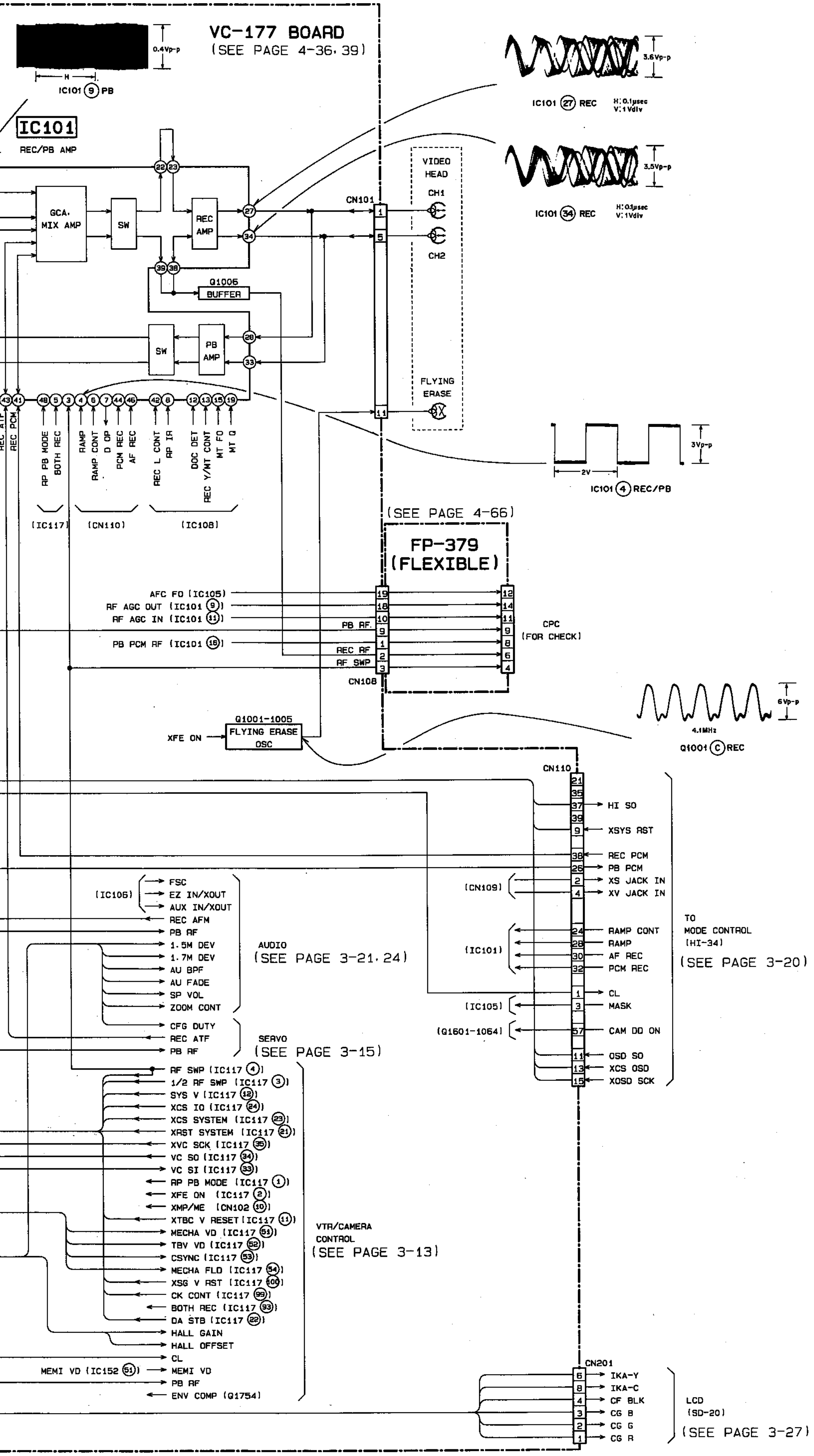
9 **La pila de litio está débil o no está instalada.**

2-17. CIRCUIT BOARDS LOCATION

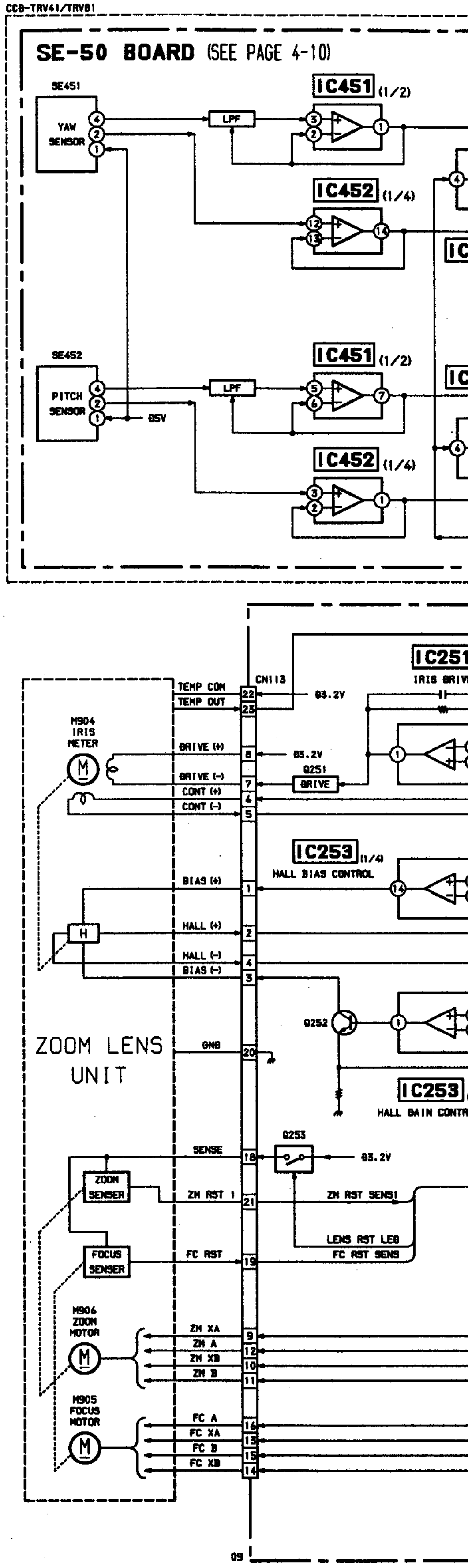

Viewfinder
VF-99
(B/W EVF)


FK-65
(Control)
SD-20
(RGB Decoder, Speaker Drive)
MA-262
(Audio)
LI-53
(Battery)
EZ-20
(Easy Connector)
MF-292
(Control Switch)

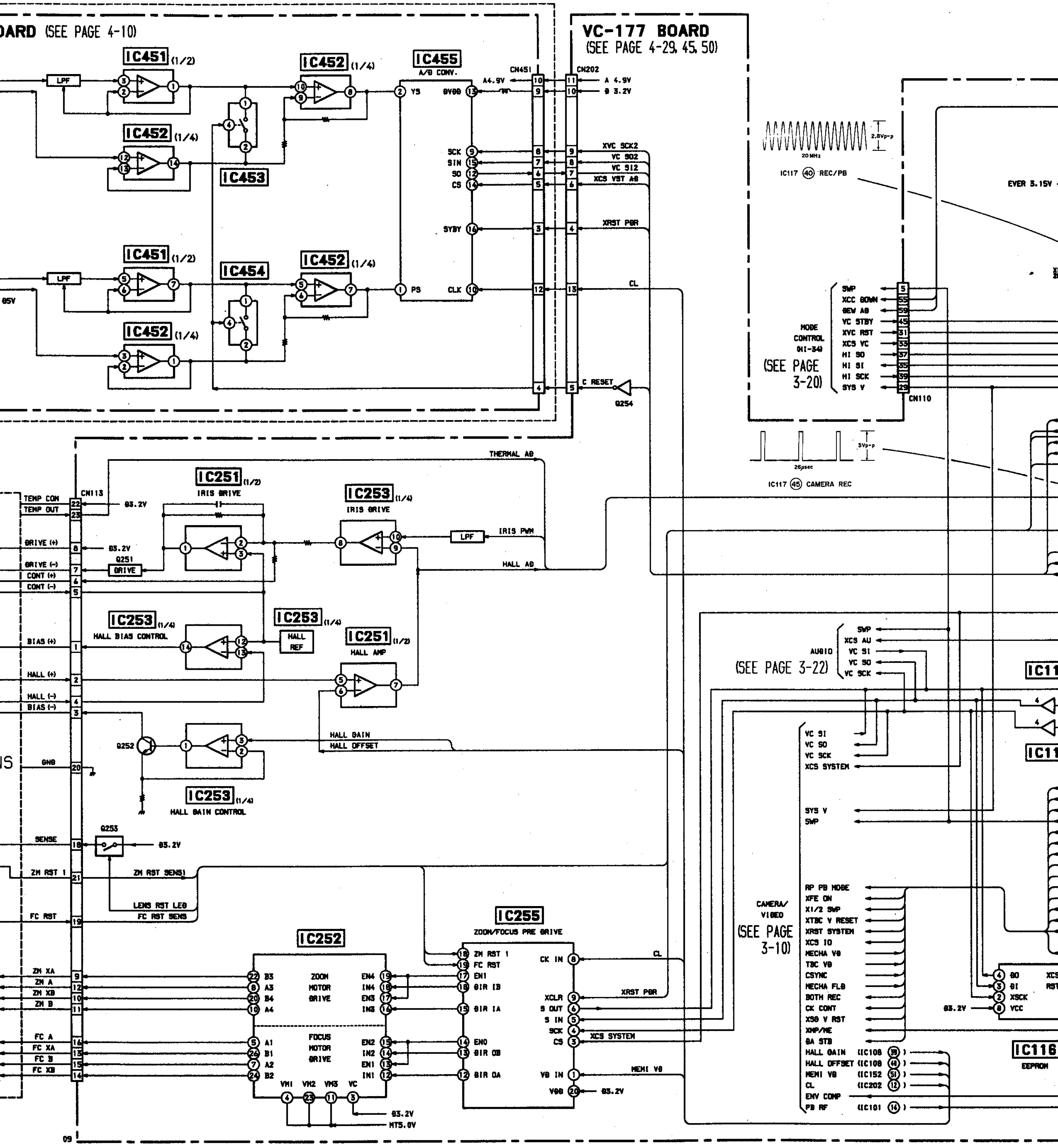

DD-85
(Power Supply)
CD-146
(CCD Imager)
PD-65
(LCD Drive)
HI-34
(Mode Control)
AV-34
(In/Out)
SE-50(TRV41/TRV81)
(Steady Shot)
VC-177
(Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio)

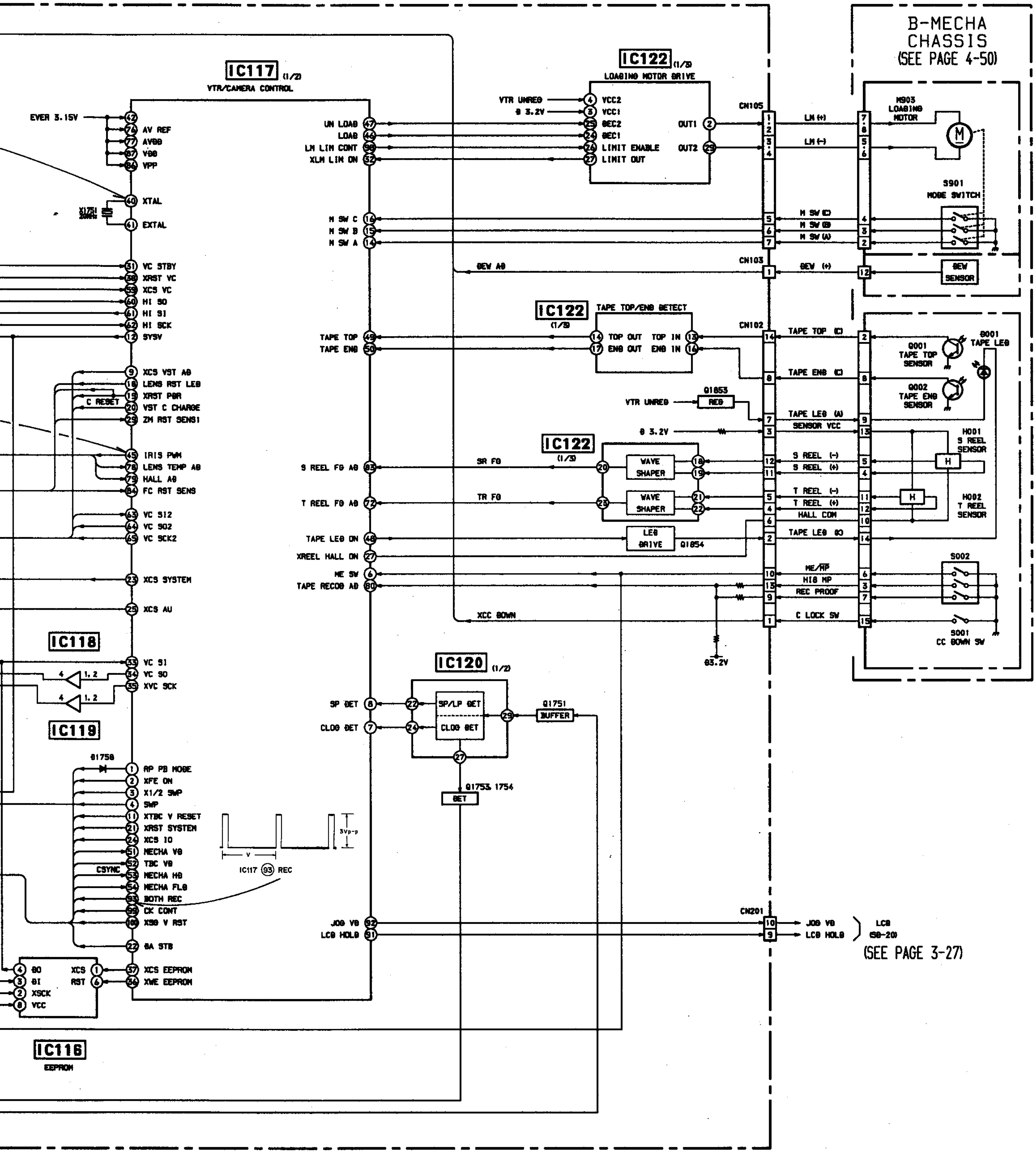

VC-177 BOARD
(SEE PAGE 4-36, 39)
0.4Vp-p
H
IC101 (9) PB
IC101
REC/PB AMP
GCA. MIX AMP
SW
REC AMP
Q1006 BUFFER
SW
PB AMP
CN101
VIDEO HEAD
CH1
CH2
FLYING ERASE
3.6Vp-p
IC101 (27) REC
H: 0.1μsec V: 1Vdiv
3.5Vp-p
IC101 (34) REC
H: 0.1μsec V: 1Vdiv
3Vp-p
2V
IC101 (4) REC/PB
REC ATF
REC PCM
RP PB MODE
BOTH REC
RAMP
RAMP CONT
D OP
PCM REC
AF REC
REC L CONT
RP IR
DOC DET
REC Y/MT CONT
MT FO
MT Q
(IC117)
(CN110)
(IC108)
(SEE PAGE 4-66)
FP-379 (FLEXIBLE)
AFC FO (IC105)
RF AGC OUT (IC101 (9))
RF AGC IN (IC101 (11))
PB RF
PB PCM RF (IC101 (16))
REC RF
RF SWP
CN108
CPC (FOR CHECK)
6Vp-p
4.1MHz
Q1001 (C) REC
Q1001-1005 FLYING ERASE OSC
XFE ON
CN110
HI SO
XSYS RST
REC PCM
PB PCM
(CN109)
XS JACK IN
XV JACK IN
(IC101)
RAMP CONT
RAMP
AF REC
PCM REC
CL
(IC105)
MASK
(Q1601-1064)
CAM DD ON
OSD SO
XCS OSD
XOSD SCK
TO MODE CONTROL (HI-34)
(SEE PAGE 3-20)
(IC106)
FSC
EZ IN/XOUT
AUX IN/XOUT
REC AFM
PB RF
1.5M DEV
1.7M DEV
AU BPF
AU FADE
SP VOL
ZOOM CONT
AUDIO
(SEE PAGE 3-21, 24)
CFG DUTY
REC ATF
PB RF
SERVO
(SEE PAGE 3-15)
RF SWP (IC117 (4))
1/2 RF SWP (IC117 (3))
SYS V (IC117 (12))
XCS IO (IC117 (24))
XCS SYSTEM (IC117 (23))
XRST SYSTEM (IC117 (21))
XVC SCK (IC117 (35))
VC SO (IC117 (34))
VC SI (IC117 (33))
RP PB MODE (IC117 (1))
XFE ON (IC117 (2))
XMP/ME (CN102 (10))
XTBC V RESET (IC117 (11))
MECHA VD (IC117 (51))
TBV VD (IC117 (52))
CSYNC (IC117 (53))
MECHA FLD (IC117 (54))
XSG V RST (IC117 (100))
CK CONT (IC117 (99))
BOTH REC (IC117 (93))
DA STB (IC117 (22))
HALL GAIN
HALL OFFSET
CL
MEMI VD (IC152 (51))
MEMI VD
PB RF
ENV COMP (Q1754)
VTR/CAMERA CONTROL
(SEE PAGE 3-13)
CN201
IKA-Y
IKA-C
CF BLK
CG B
CG G
CG R
LCD (SD-20)
(SEE PAGE 3-27)

3-3. VTR/CAMERA CONTROL BLOCK DI

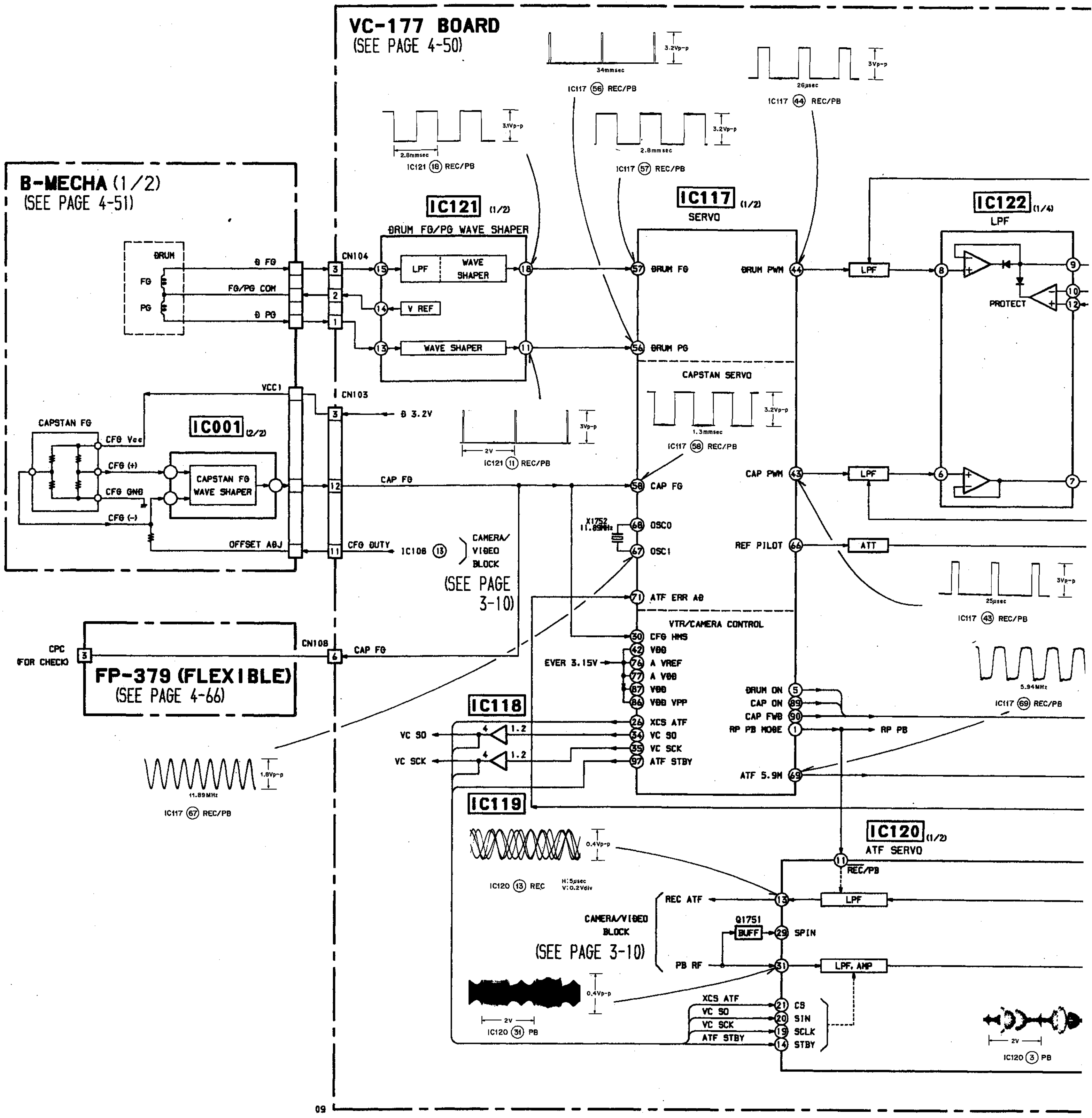

CCD-TRV41/TRV81
SE-50 BOARD (SEE PAGE 4-10)
SE451
YAW SENSOR
LPF
IC451 (1/2)
IC452 (1/4)
SE452
PITCH SENSOR
B5V
LPF
IC451 (1/2)
IC452 (1/4)
IC251
IRIS DRIV
CN113
TEMP CON
TEMP OUT
B3.2V
M904 IRIS METER
DRIVE (+)
DRIVE (−)
CONT (+)
CONT (−)
B3.2V
Q251
DRIVE
IC253 (1/4)
HALL BIAS CONTROL
BIAS (+)
HALL (+)
HALL (−)
BIAS (−)
H
Q252
ZOOM LENS UNIT
GND
IC253
HALL GAIN CONTR
SENSE
Q253
B3.2V
ZOOM SENSER
ZM RST 1
ZM RST SENS1
LENS RST LED
FOCUS SENSER
FC RST
FC RST SENS
M906 ZOOM MOTOR
ZM XA
ZM A
ZM XB
ZM B
M905 FOCUS MOTOR
FC A
FC XA
FC B
FC XB
09

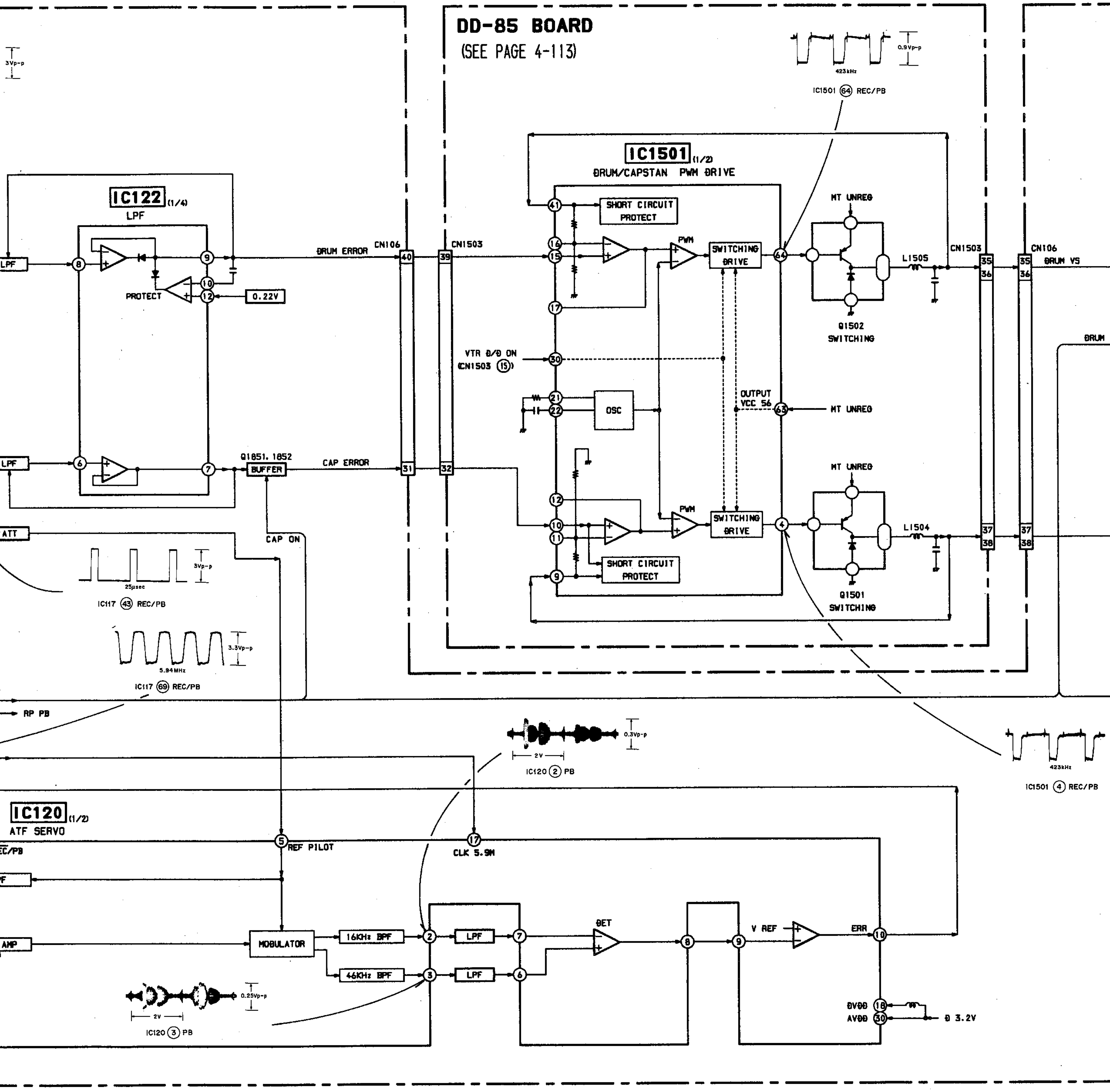
AMERA CONTROL BLOCK DIAGRAM

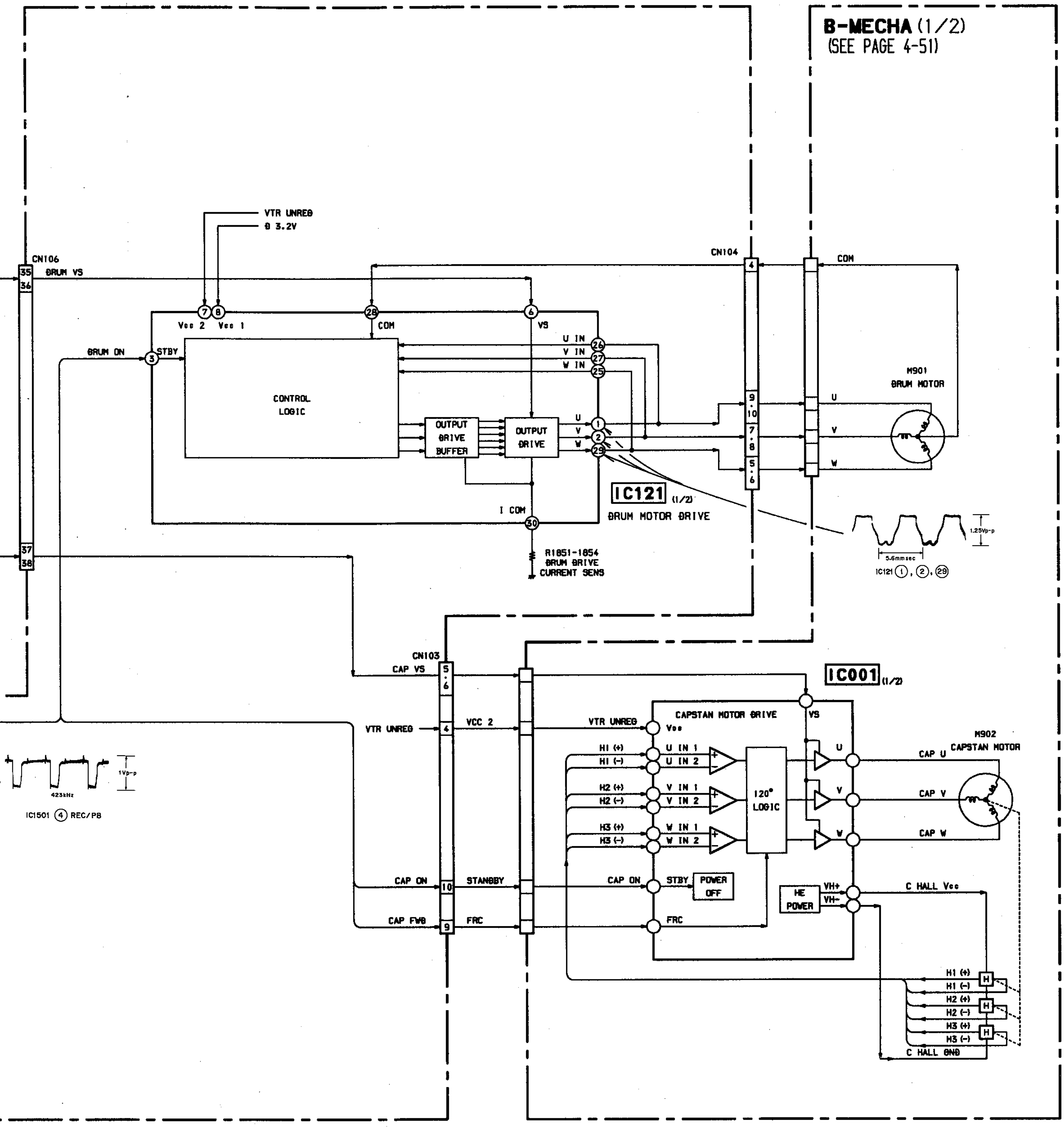

ARD (SEE PAGE 4-10)
IC451 (1/2)
IC452 (1/4)
IC455
A/D CONV.
LPF
IC453
IC454
YS
DVDD
SCK
SIN
SO
CS
STBY
PS
CLK
CN451
A4.9V
VC-177 BOARD
(SEE PAGE 4-29, 45, 50)
CN202
A 4.9V
D 3.2V
XVC SCK2
VC SO2
VC SI2
XCS VST AD
XRST PDR
CL
C RESET
Q254
IC117 (40) REC/PB
2.8Vp-p
20MHz
EVER 3.15V
MODE CONTROL (HI-34)
(SEE PAGE 3-20)
SWP
XCC DOWN
DEW AD
VC STBY
XVC RST
XCS VC
HI SO
HI SI
HI SCK
SYS V
CN110
3Vp-p
26μsec
IC117 (45) CAMERA REC
THERMAL AD
CN113
TEMP COM
TEMP OUT
D3.2V
IC251 (1/2)
IRIS DRIVE
IC253 (1/4)
IRIS DRIVE
IRIS PWM
HALL AD
DRIVE (+)
DRIVE (-)
Q251
DRIVE
CONT (+)
CONT (-)
IC253 (1/4)
HALL BIAS CONTROL
HALL REF
IC251 (1/2)
HALL AMP
BIAS (+)
HALL (+)
HALL (-)
BIAS (-)
HALL GAIN
HALL OFFSET
Q252
IC253 (1/4)
HALL GAIN CONTROL
GND
SENSE
Q253
ZM RST 1
ZM RST SENS1
LENS RST LED
FC RST
FC RST SENS
IC252
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
ZM XA
ZM A
ZM XB
ZM B
FC A
FC XA
FC B
FC XB
VM1
VM2
VM3
VC
D3.2V
MT5.0V
IC255
ZOOM/FOCUS PRE DRIVE
ZM RST 1
FC RST
EN1
DIR 1B
DIR 1A
EN0
DIR 0B
DIR 0A
CK IN
XCLR
S OUT
S IN
SCK
CS
VD IN
VDD
XRST PDR
XCS SYSTEM
MEMI VD
AUDIO (SEE PAGE 3-22)
SWP
XCS AU
VC SI
VC SO
VC SCK
XCS SYSTEM
SYS V
CAMERA/VIDEO (SEE PAGE 3-10)
RP PB MODE
XFE ON
X1/2 SWP
XTBC V RESET
XRST SYSTEM
XCS IO
MECHA VD
TBC VD
CSYNC
MECHA FLD
DOTH REC
CK CONT
XSD V RST
XMP/ME
DA STB
HALL GAIN (IC108 (39))
HALL OFFSET (IC108 (40))
MEMI VD (IC152 (51))
CL (IC202 (12))
ENV COMP
PB RF (IC101 (14))
IC116
EEPROM
SO
SI
XSCK
VCC
XCS
RST
09


IC117 (1/2)
VTR/CAMERA CONTROL
EVER 3.15V
42
74 AV REF
77 AVDD
87 VDD
86 VPP
40 XTAL
X1751 20MHz
41 EXTAL
51 VC STBY
58 XRST VC
59 XCS VC
60 HI SO
61 HI SI
62 HI SCK
12 SYSV
9 XCS VST AD
18 LENS RST LED
19 XRST PDR
C RESET
20 VST C CHARGE
29 ZM RST SENS1
45 IRIS PWM
78 LENS TEMP AD
79 HALL AD
84 FC RST SENS
63 VC SI2
64 VC SO2
65 VC SCK2
23 XCS SYSTEM
25 XCS AU
IC118
33 VC SI
34 VC SO
35 XVC SCK
IC119
Q1758
1 RP PB MODE
2 XFE ON
3 X1/2 SWP
4 SWP
11 XTBC V RESET
21 XRST SYSTEM
24 XCS IO
51 MECHA VD
52 TBC VD
CSYNC
53 MECHA HD
54 MECHA FLD
93 DOTH REC
99 CK CONT
100 XSD V RST
22 DA STB
37 XCS EEPROM
36 XWE EEPROM
4 DO
3 DI
2 XSCK
8 VCC
XCS 1
RST 6
IC116
EEPROM
UN LOAD 47
LOAD 46
LM LIM CONT 90
XLM LIM ON 52
M SW C 16
M SW B 15
M SW A 14
DEW AD
TAPE TOP 49
TAPE END 50
S REEL FG AD 83
T REEL FG AD 72
TAPE LED ON 48
XREEL HALL ON 27
ME SW 6
TAPE RECOD AD 80
XCC DOWN
SP DET 8
CLOG DET 7
3Vp-p
V
IC117 93 REC
JOG VD 92
LCD HOLD 91
IC122 (1/3)
LOADING MOTOR DRIVE
VTR UNREG
D 3.2V
4 VCC2
3 VCC1
25 DEC2
24 DEC1
26 LIMIT ENABLE
27 LIMIT OUT
OUT1 2
OUT2 29
IC122 (1/3)
TAPE TOP/END DETECT
14 TOP OUT
17 END OUT
TOP IN 13
END IN 16
Q1853
VTR UNREG
REG
D 3.2V
IC122 (1/3)
SR FG
TR FG
20
23
WAVE SHAPER
WAVE SHAPER
18
19
21
22
LED DRIVE
Q1854
IC120 (1/2)
SP/LP DET
CLOG DET
22
24
29
27
Q1751
BUFFER
Q1753, 1754
DET
CN105
CN103
CN102
D3.2V
CN201
LM (+)
LM (-)
M SW (C)
M SW (B)
M SW (A)
DEW (+)
TAPE TOP (C)
TAPE END (C)
TAPE LED (A)
SENSOR VCC
S REEL (-)
S REEL (+)
T REEL (-)
T REEL (+)
HALL COM
TAPE LED (K)
ME/MP
HI8 MP
REC PROOF
C LOCK SW
JOG VD
LCD HOLD
LCD (SD-20)
(SEE PAGE 3-27)
B-MECHA CHASSIS
(SEE PAGE 4-50)
M903 LOADING MOTOR
M
S901 MODE SWITCH
DEW SENSOR
Q001 TAPE TOP SENSOR
D001 TAPE LED
Q002 TAPE END SENSOR
H001 S REEL SENSOR
H
H002 T REEL SENSOR
S002
S001 CC DOWN SW

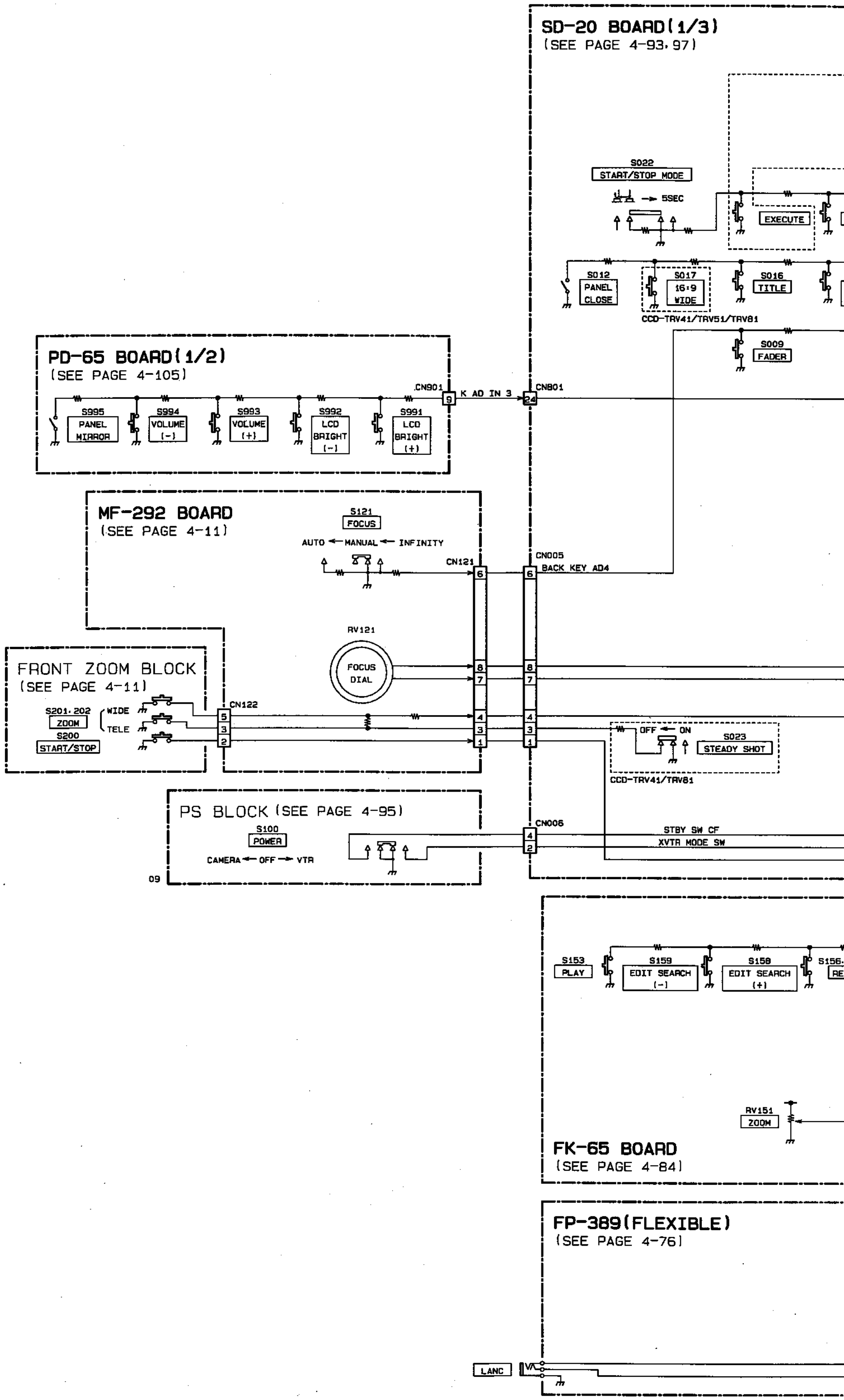
3-4. SERVO BLOCK DIAGRAM

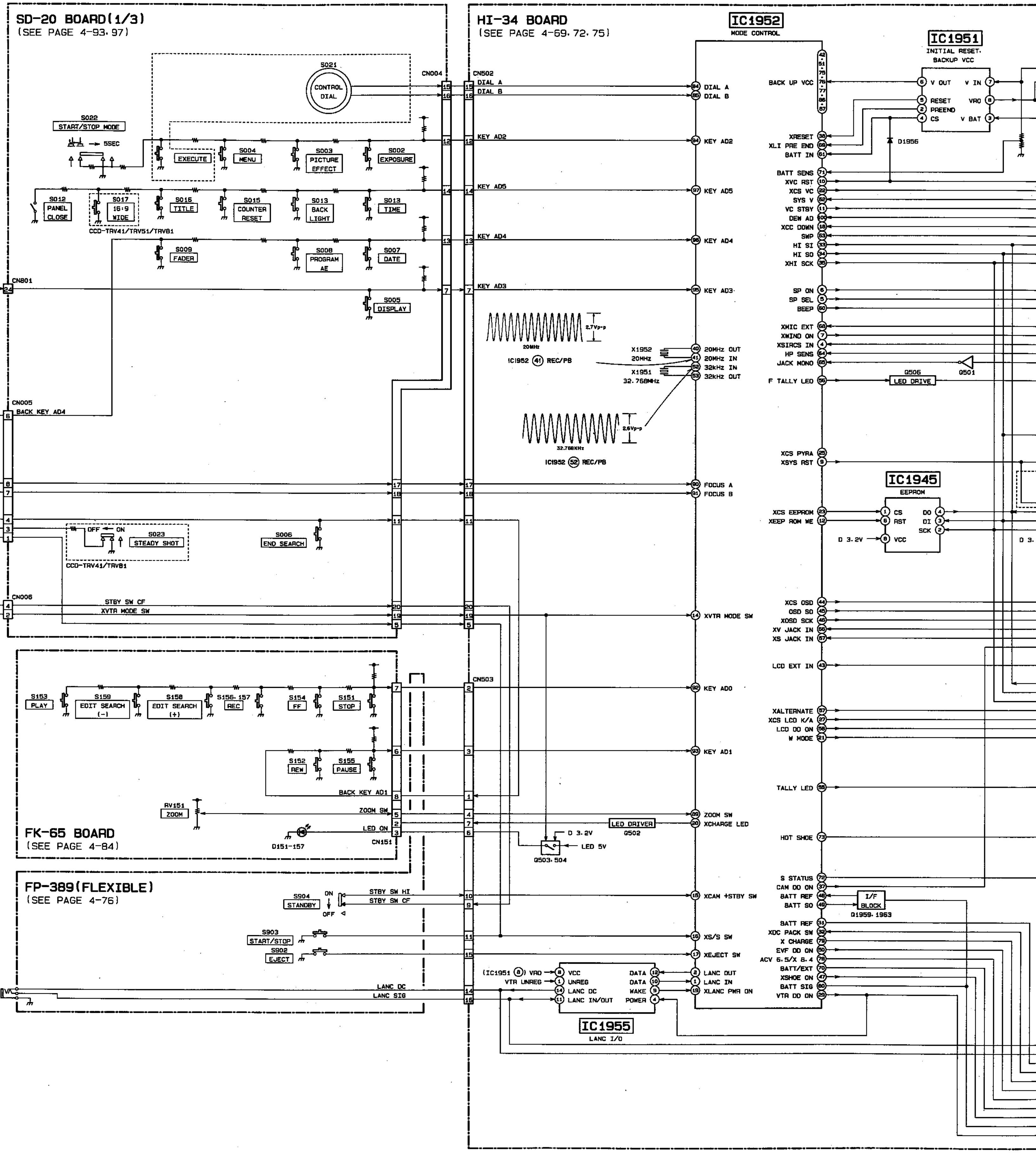

VC-177 BOARD
(SEE PAGE 4-50)
B-MECHA (1/2)
(SEE PAGE 4-51)
DRUM
FG
PG
D FG
FG/PG COM
D PG
CN104
IC121 (1/2)
DRUM FG/PG WAVE SHAPER
LPF
WAVE SHAPER
V REF
WAVE SHAPER
2.8mmsec
3.1Vp-p
IC121 ⑱ REC/PB
34mmsec
3.2Vp-p
IC117 56 REC/PB
2.8mmsec
3.2Vp-p
IC117 57 REC/PB
26μsec
3Vp-p
IC117 44 REC/PB
IC117 (1/2)
SERVO
DRUM FG
DRUM PG
DRUM PWM
CAPSTAN SERVO
1.3mmsec
3.2Vp-p
IC117 58 REC/PB
CAP FG
CAP PWM
OSCO
OSCI
X1752
11.89MHz
REF PILOT
ATF ERR AD
VTR/CAMERA CONTROL
CFG HMS
VDD
A VREF
A VDD
VDD
VDD VPP
XCS ATF
VC SO
VC SCK
ATF STBY
EVER 3.15V
DRUM ON
CAP ON
CAP FWD
RP PB MODE
ATF 5.9M
RP PB
IC122 (1/4)
LPF
LPF
PROTECT
LPF
ATT
25μsec
3Vp-p
IC117 43 REC/PB
5.94MHz
IC117 69 REC/PB
VCC1
CN103
D 3.2V
2V
3Vp-p
IC121 ⑪ REC/PB
CAPSTAN FG
IC001 (2/2)
CFG Vcc
CFG (+)
CFG GND
CFG (−)
CAPSTAN FG WAVE SHAPER
CAP FG
OFFSET ADJ
CFG DUTY
IC108 ⑬
CAMERA/VIDEO BLOCK
(SEE PAGE 3-10)
CPC (FOR CHECK)
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
CN108
CAP FG
IC118
VC SO
VC SCK
1.2
4
1.8Vp-p
11.89MHz
IC117 67 REC/PB
IC119
0.4Vp-p
IC120 ⑬ REC
H:5μsec
V:0.2Vdiv
0.4Vp-p
2V
IC120 31 PB
IC120 (1/2)
ATF SERVO
REC/PB
REC ATF
LPF
CAMERA/VIDEO BLOCK
(SEE PAGE 3-10)
Q1751
BUFF
SPIN
PB RF
LPF, AMP
XCS ATF
VC SO
VC SCK
ATF STBY
CS
SIN
SCLK
STBY
2V
IC120 ③ PB
09

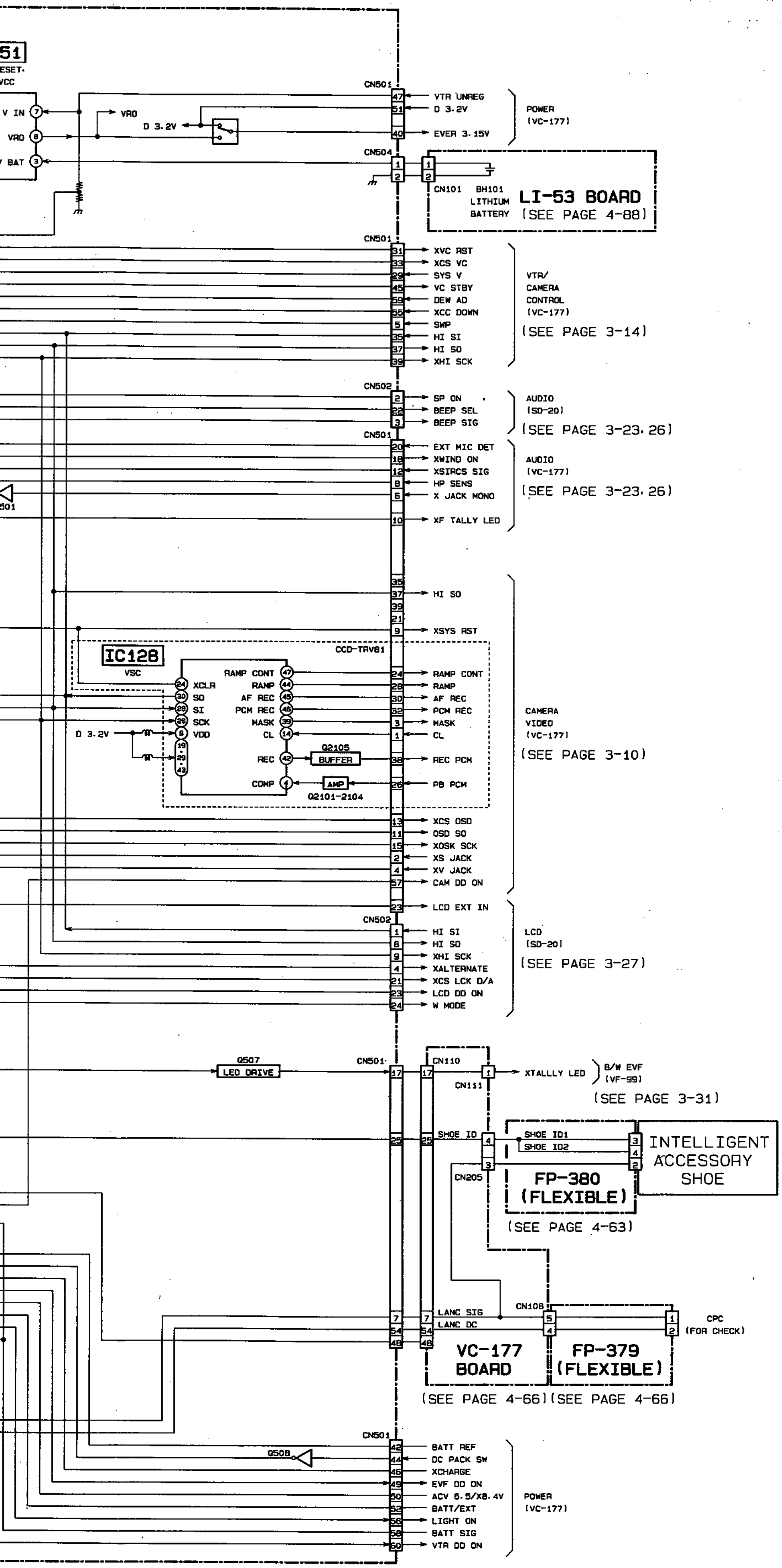

DD-85 BOARD
(SEE PAGE 4-113)
IC1501 (1/2)
DRUM/CAPSTAN PWM DRIVE
IC122 (1/4)
LPF
IC120 (1/2)
ATF SERVO
0.9Vp-p
423kHz
IC1501 64 REC/PB
SHORT CIRCUIT PROTECT
MT UNREG
PWM
SWITCHING DRIVE
Q1502 SWITCHING
Q1501 SWITCHING
L1505
L1504
CN1503
CN106
DRUM VS
DRUM
DRUM ERROR
CAP ERROR
PROTECT
0.22V
LPF
ATT
Q1851, 1852
BUFFER
CAP ON
VTR D/D ON
(CN1503 15)
OSC
OUTPUT VCC 56
3Vp-p
25μsec
IC117 43 REC/PB
3.3Vp-p
5.94MHz
IC117 69 REC/PB
RP PB
0.3Vp-p
2V
IC120 2 PB
423kHz
IC1501 4 REC/PB
REF PILOT
CLK 5.9M
EC/PB
MODULATOR
16KHz BPF
46KHz BPF
AMP
DET
V REF
ERR
DVDD
AVDD
D 3.2V
0.25Vp-p
2V
IC120 3 PB


B-MECHA (1/2)
(SEE PAGE 4-51)
VTR UNREG
D 3.2V
CN106
DRUM VS
35
36
37
38
DRUM ON
STBY
Vcc 2
Vcc 1
COM
VS
U IN
V IN
W IN
CONTROL LOGIC
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
U
V
W
I COM
IC121 (1/2)
DRUM MOTOR DRIVE
R1851-1854
DRUM DRIVE
CURRENT SENS
CN104
COM
M901
DRUM MOTOR
1.25Vp-p
5.6msec
IC121 ①, ②, ㉙
1Vp-p
423kHz
IC1501 ④ REC/PB
CN103
CAP VS
VTR UNREG
VCC 2
CAP ON
STANDBY
CAP FWD
FRC
IC001 (1/2)
CAPSTAN MOTOR DRIVE
Vcc
VS
H1 (+)
H1 (−)
H2 (+)
H2 (−)
H3 (+)
H3 (−)
U IN 1
U IN 2
V IN 1
V IN 2
W IN 1
W IN 2
120° LOGIC
STBY
POWER OFF
HE POWER
VH+
VH−
M902
CAPSTAN MOTOR
CAP U
CAP V
CAP W
C HALL Vcc
C HALL GND
H

3-5. MODE CONTROL BLOCK DIAGRAM

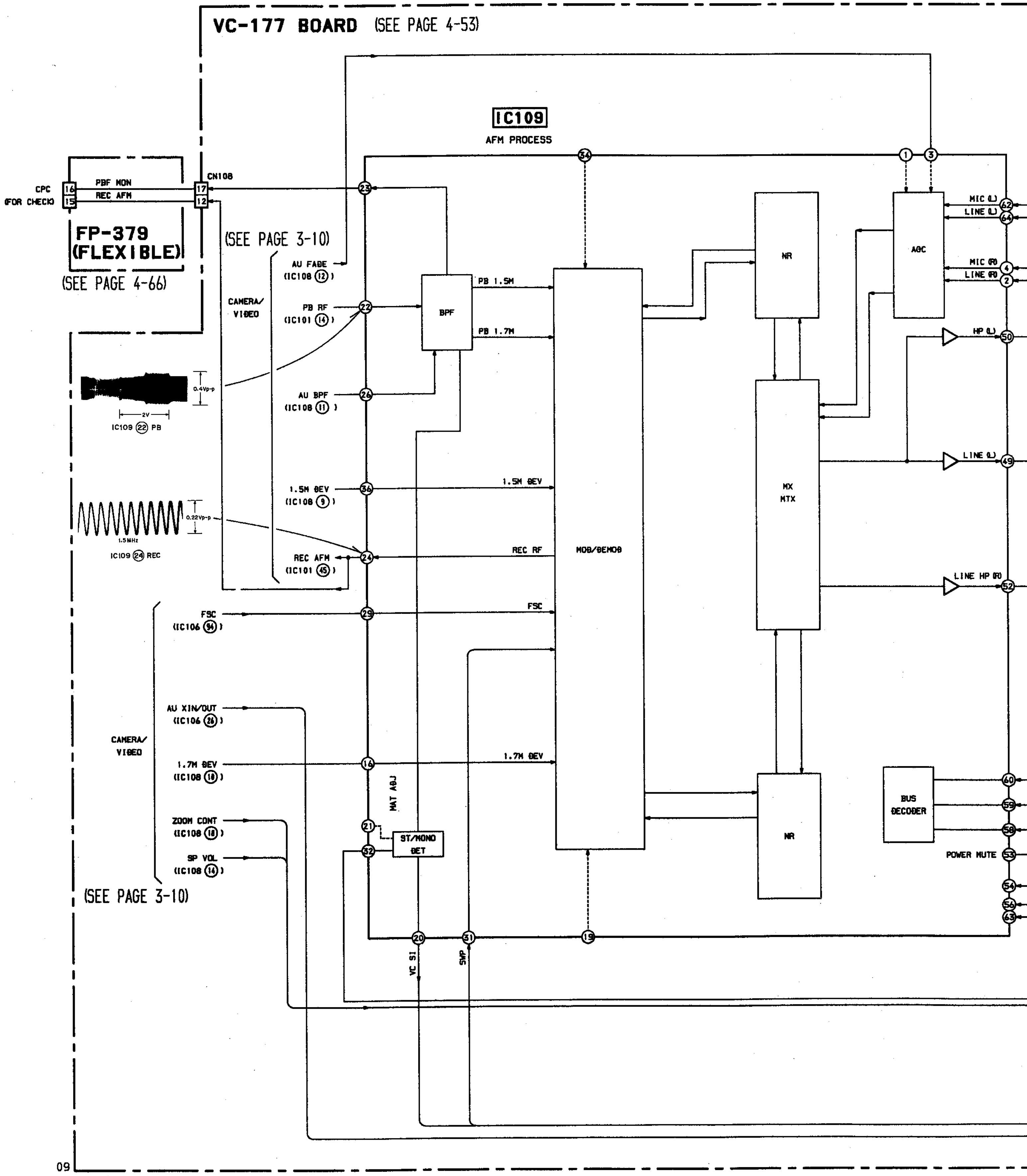

SD-20 BOARD(1/3)
(SEE PAGE 4-93, 97)
S022
START/STOP MODE
5SEC
EXECUTE
S012
PANEL CLOSE
S017
16:9 WIDE
S016
TITLE
CCD-TRV41/TRV51/TRV81
S009
FADER
PD-65 BOARD(1/2)
(SEE PAGE 4-105)
CN901
K AD IN 3
CN801
S995
PANEL MIRROR
S994
VOLUME (-)
S993
VOLUME (+)
S992
LCD BRIGHT (-)
S991
LCD BRIGHT (+)
MF-292 BOARD
(SEE PAGE 4-11)
S121
FOCUS
AUTO ← MANUAL ← INFINITY
CN121
CN005
BACK KEY AD4
RV121
FOCUS DIAL
FRONT ZOOM BLOCK
(SEE PAGE 4-11)
S201, 202
ZOOM
WIDE
TELE
S200
START/STOP
CN122
OFF ← ON
S023
STEADY SHOT
CCD-TRV41/TRV81
PS BLOCK (SEE PAGE 4-95)
S100
POWER
CAMERA ← OFF → VTR
CN006
STBY SW CF
XVTR MODE SW
09
S153
PLAY
S159
EDIT SEARCH (-)
S158
EDIT SEARCH (+)
S156
RV151
ZOOM
FK-65 BOARD
(SEE PAGE 4-84)
FP-389(FLEXIBLE)
(SEE PAGE 4-76)
LANC

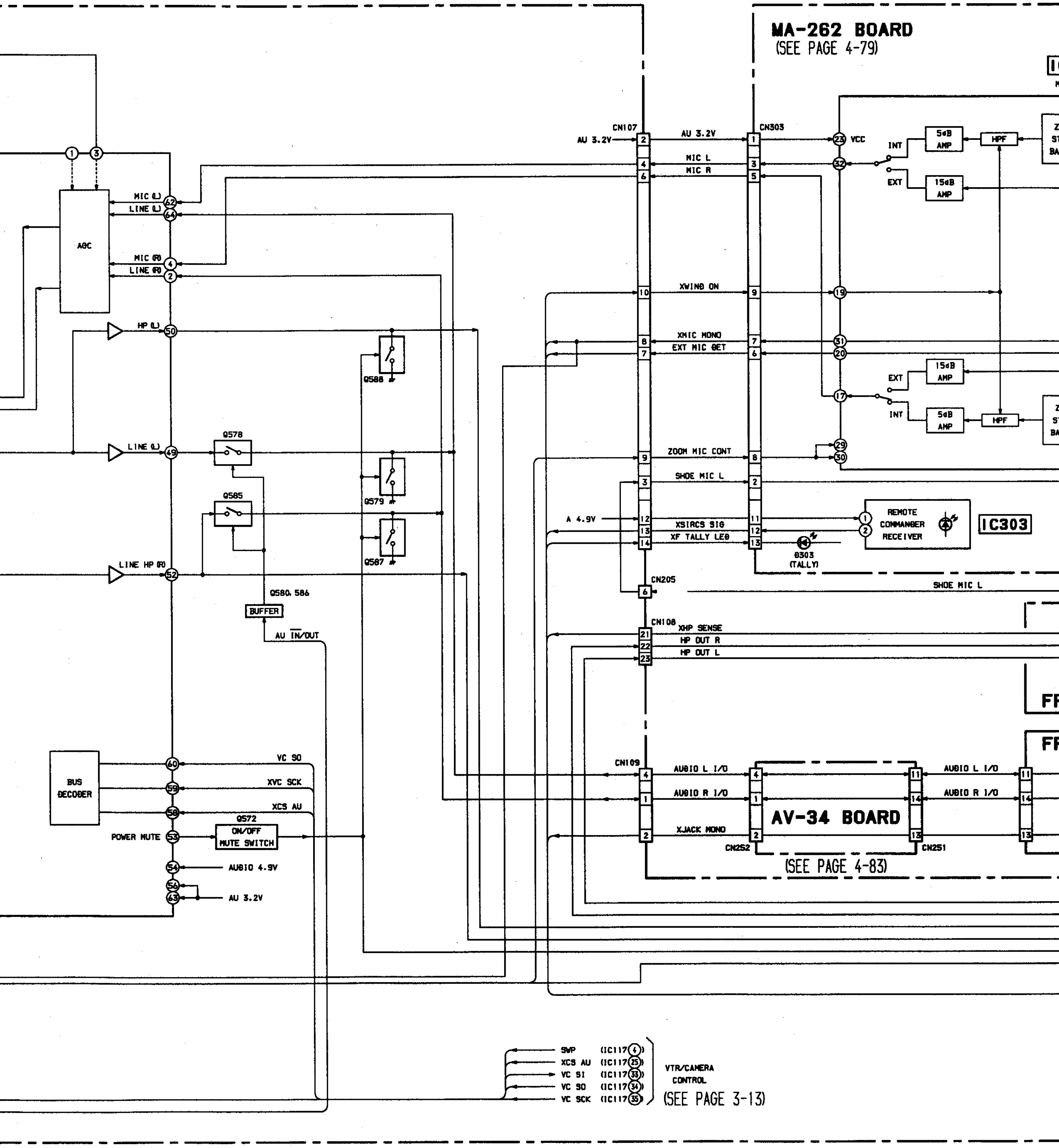

SD-20 BOARD(1/3)
(SEE PAGE 4-93, 97)
HI-34 BOARD
(SEE PAGE 4-69, 72, 75)
IC1952
MODE CONTROL
IC1951
INITIAL RESET, BACKUP VCC
S021 CONTROL DIAL
S022 START/STOP MODE
→ 5SEC
EXECUTE
S004 MENU
S003 PICTURE EFFECT
S002 EXPOSURE
S012 PANEL CLOSE
S017 16:9 WIDE
CCD-TRV41/TRV51/TRV81
S016 TITLE
S015 COUNTER RESET
S013 BACK LIGHT
S013 TIME
S009 FADER
S008 PROGRAM AE
S007 DATE
S005 DISPLAY
CN004
CN502
DIAL A
DIAL B
KEY AD2
KEY AD5
KEY AD4
KEY AD3
CN801
CN005
BACK KEY AD4
OFF ← ON
S023 STEADY SHOT
CCD-TRV41/TRV81
S006 END SEARCH
CN006
STBY SW CF
XVTR MODE SW
20MHz
2.7Vp-p
IC1952 (41) REC/PB
32.768KHz
2.6Vp-p
IC1952 (52) REC/PB
X1952 20MHz
X1951 32.768MHz
BACK UP VCC
XRESET
XLI PRE END
BATT IN
BATT SENS
XVC RST
XCS VC
SYS V
VC STBY
DEW AD
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
SP ON
SP SEL
BEEP
XMIC EXT
XWIND ON
XSIRCS IN
HP SENS
JACK MONO
F TALLY LED
Q506 LED DRIVE
Q501
D1956
V OUT
V IN
RESET
VRO
PREEND
CS
V BAT
KEY AD2
KEY AD5
KEY AD4
KEY AD3
20MHz OUT
20MHz IN
32kHz IN
32kHz OUT
FOCUS A
FOCUS B
XVTR MODE SW
KEY AD0
KEY AD1
ZOOM SW
XCHARGE LED
XCAM +STBY SW
XS/S SW
XEJECT SW
LANC OUT
LANC IN
XLANC PWR ON
XCS PYRA
XSYS RST
IC1945
EEPROM
XCS EEPROM
XEEP ROM WE
CS DO
RST DI
SCK
D 3.2V
VCC
XCS OSD
OSD SO
XOSD SCK
XV JACK IN
XS JACK IN
LCD EXT IN
XALTERNATE
XCS LCD K/A
LCD DD ON
W MODE
TALLY LED
HOT SHOE
S STATUS
CAM DD ON
BATT REF
BATT SO
I/F BLOCK
Q1959, 1963
BATT REF
XDC PACK SW
X CHARGE
EVF DD ON
ACV 6.5/X 8.4
BATT/EXT
XSHOE ON
BATT SIG
VTR DD ON
CN503
S153 PLAY
S159 EDIT SEARCH (-)
S158 EDIT SEARCH (+)
S156, 157 REC
S154 FF
S151 STOP
S152 REW
S155 PAUSE
BACK KEY AD1
RV151 ZOOM
ZOOM SW
LED ON
D151-157
CN151
FK-65 BOARD
(SEE PAGE 4-84)
LED DRIVER Q502
D 3.2V
LED 5V
Q503, 504
FP-389(FLEXIBLE)
(SEE PAGE 4-76)
S904 STANDBY
ON
OFF
STBY SW HI
STBY SW CF
S903 START/STOP
S902 EJECT
LANC DC
LANC SIG
(IC1951 (8)) VRO
VTR UNREG
VCC
UNREG
LANC DC
LANC IN/OUT
DATA
DATA
WAKE
POWER
IC1955
LANC I/O
D 3.

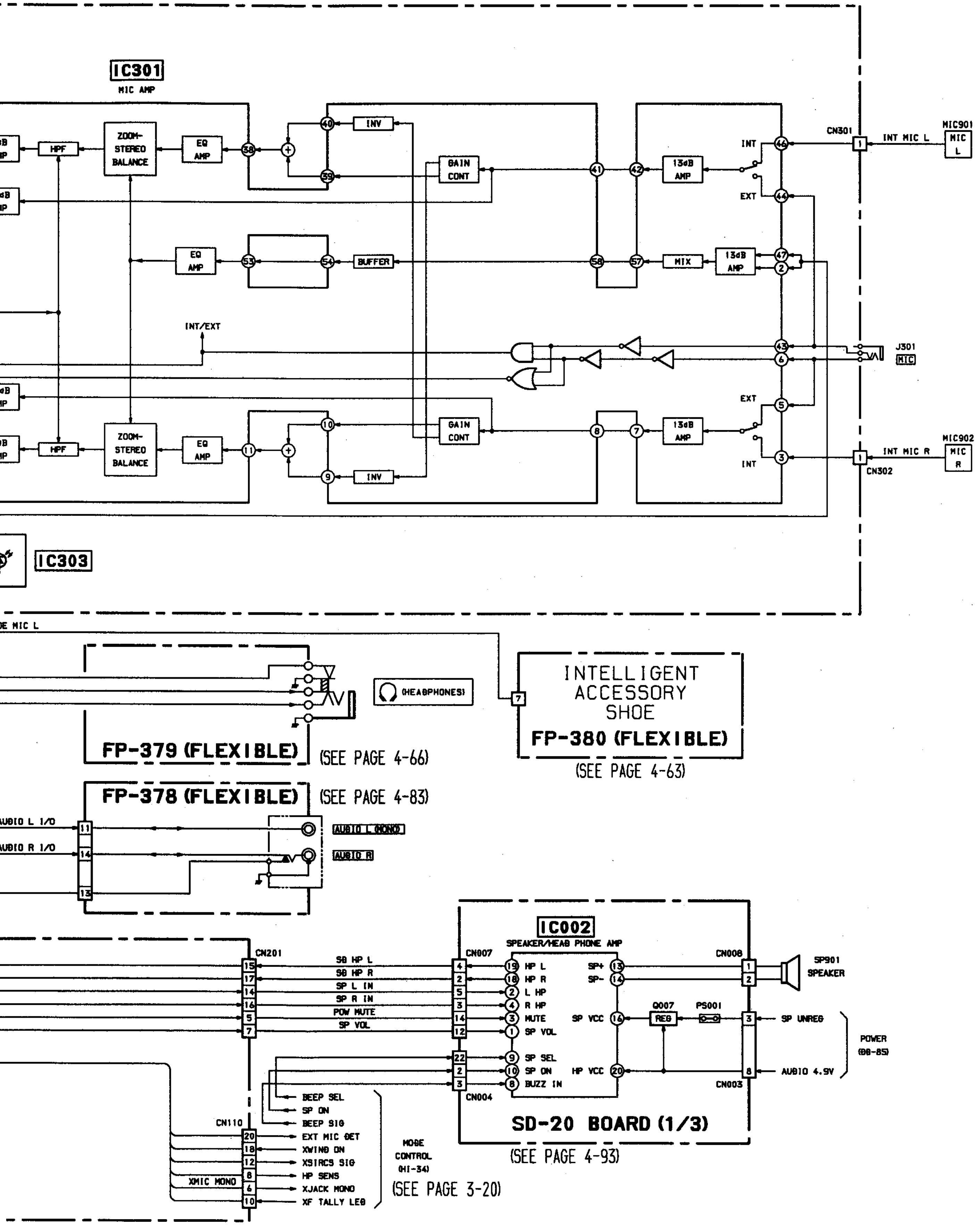


51
ESET·
VCC
V IN
VRO
BAT
VRO
D 3.2V
CN501
VTR UNREG
D 3.2V
EVER 3.15V
POWER (VC-177)
CN504
CN101
BH101 LITHIUM BATTERY
LI-53 BOARD
(SEE PAGE 4-88)
XVC RST
XCS VC
SYS V
VC STBY
DEW AD
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
VTR/ CAMERA CONTROL (VC-177)
(SEE PAGE 3-14)
CN502
SP ON
BEEP SEL
BEEP SIG
AUDIO (SD-20)
(SEE PAGE 3-23, 26)
EXT MIC DET
XWIND ON
XSIRCS SIG
HP SENS
X JACK MONO
XF TALLY LED
AUDIO (VC-177)
(SEE PAGE 3-23, 26)
501
HI SO
XSYS RST
IC128
VSC
CCD-TRV81
XCLR
SO
SI
SCK
VDD
RAMP CONT
RAMP
AF REC
PCM REC
MASK
CL
REC
COMP
Q2105 BUFFER
AMP
Q2101-2104
D 3.2V
RAMP CONT
RAMP
AF REC
PCM REC
MASK
CL
REC PCM
PB PCM
XCS OSD
OSD SO
XOSK SCK
XS JACK
XV JACK
CAM DD ON
CAMERA VIDEO (VC-177)
(SEE PAGE 3-10)
LCD EXT IN
HI SI
HI SO
XHI SCK
XALTERNATE
XCS LCK D/A
LCD DD ON
W MODE
LCD (SD-20)
(SEE PAGE 3-27)
Q507 LED DRIVE
CN110
CN111
XTALLLY LED
B/W EVF (VF-99)
(SEE PAGE 3-31)
SHOE ID
SHOE ID1
SHOE ID2
CN205
FP-380 (FLEXIBLE)
(SEE PAGE 4-63)
INTELLIGENT ACCESSORY SHOE
LANC SIG
LANC DC
CN108
CPC (FOR CHECK)
VC-177 BOARD
(SEE PAGE 4-66)
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
Q508
BATT REF
DC PACK SW
XCHARGE
EVF DD ON
ACV 6.5/X8.4V
BATT/EXT
LIGHT ON
BATT SIG
VTR DD ON
POWER (VC-177)

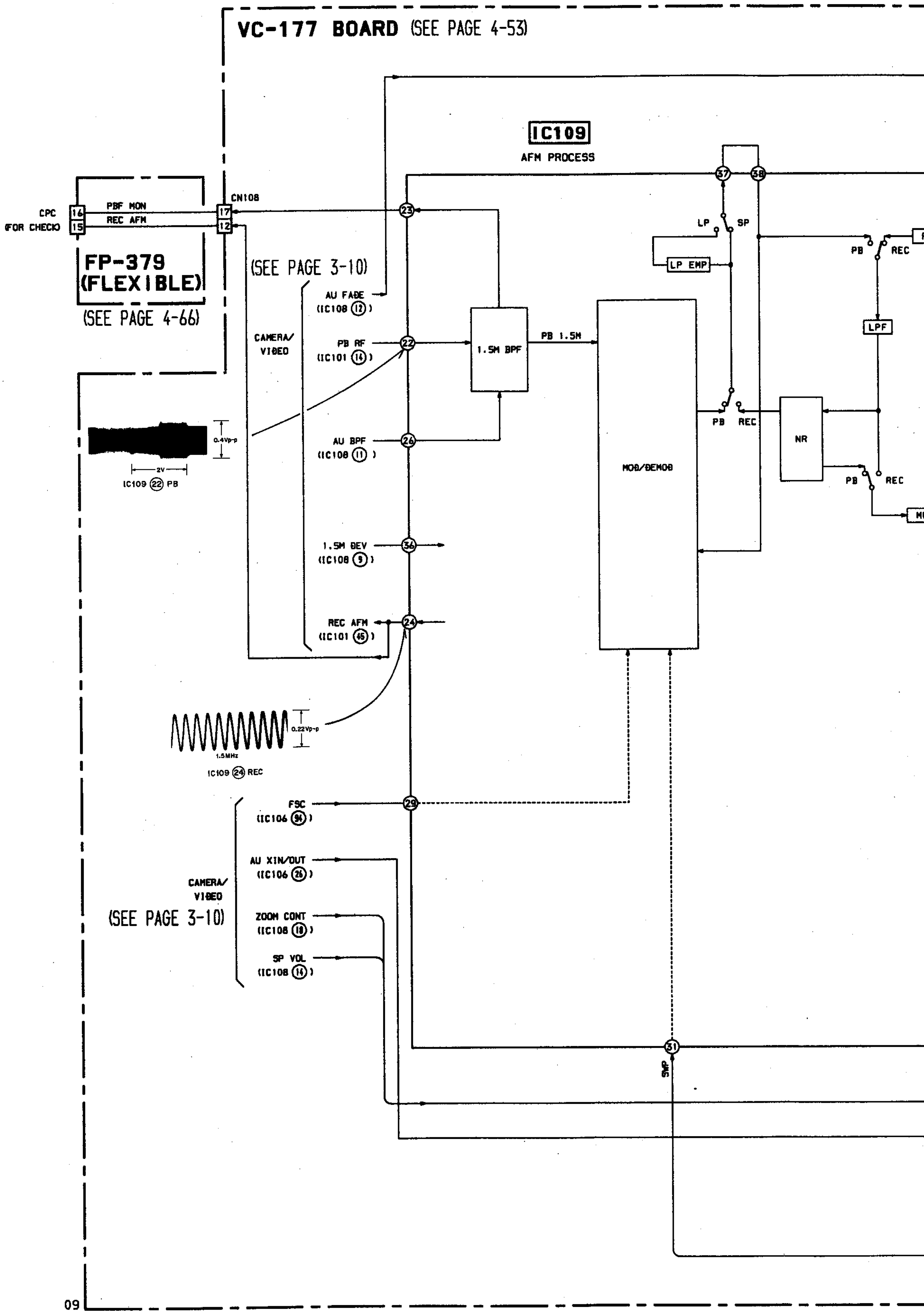
3-6. AUDIO BLOCK DIAGRAM (STEREO)

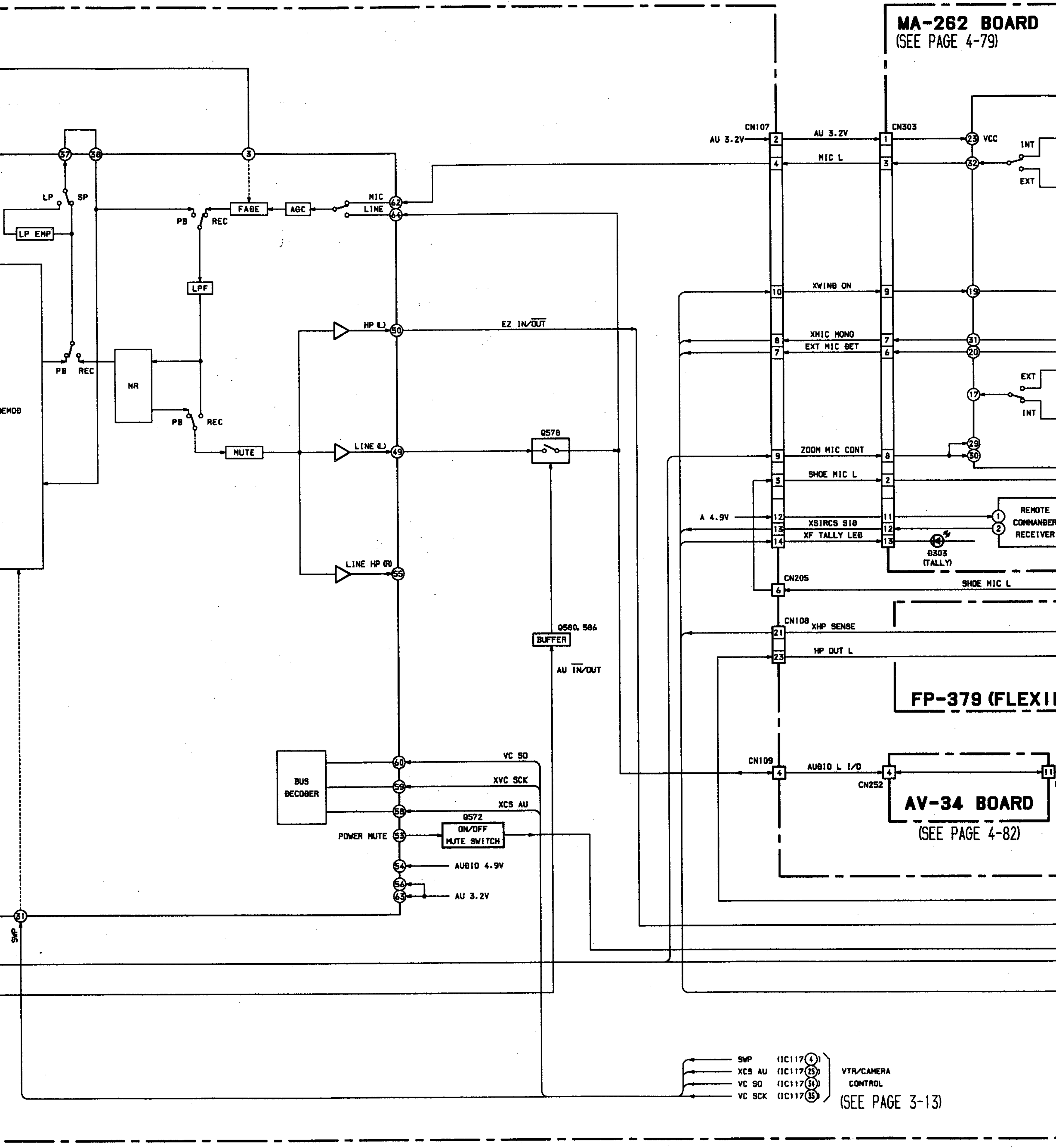

VC-177 BOARD (SEE PAGE 4-53)
IC109
AFM PROCESS
CPC
(FOR CHECK)
16
15
PBF MON
REC AFM
CN108
17
12
FP-379
(FLEXIBLE)
(SEE PAGE 4-66)
(SEE PAGE 3-10)
CAMERA/
VIDEO
AU FADE
(IC108 ⑫)
PB RF
(IC101 ⑭)
AU BPF
(IC108 ⑪)
1.5M DEV
(IC108 ⑨)
REC AFM
(IC101 (45))
0.4Vp-p
2V
IC109 ㉒ PB
0.22Vp-p
1.5MHz
IC109 ㉔ REC
FSC
(IC106 (94))
AU XIN/OUT
(IC106 ㉖)
CAMERA/
VIDEO
1.7M DEV
(IC108 ⑩)
ZOOM CONT
(IC108 ⑱)
SP VOL
(IC108 ⑭)
(SEE PAGE 3-10)
BPF
PB 1.5M
PB 1.7M
1.5M DEV
REC RF
FSC
1.7M DEV
MAT ADJ
ST/MONO
DET
VC SI
SWP
MOD/DEMOD
NR
MX
MTX
NR
AGC
BUS
DECODER
MIC (L)
LINE (L)
MIC (R)
LINE (R)
HP (L)
LINE (L)
LINE HP (R)
POWER MUTE
㉓
㉒
㉖
㊱
㉔
㉙
⑯
㉑
㉜
⑳
㉛
⑲
㉞
①
③
(62)
(64)
④
②
㊿
㊾
(52)
(60)
(59)
(58)
(53)
(54)
(56)
(63)
09

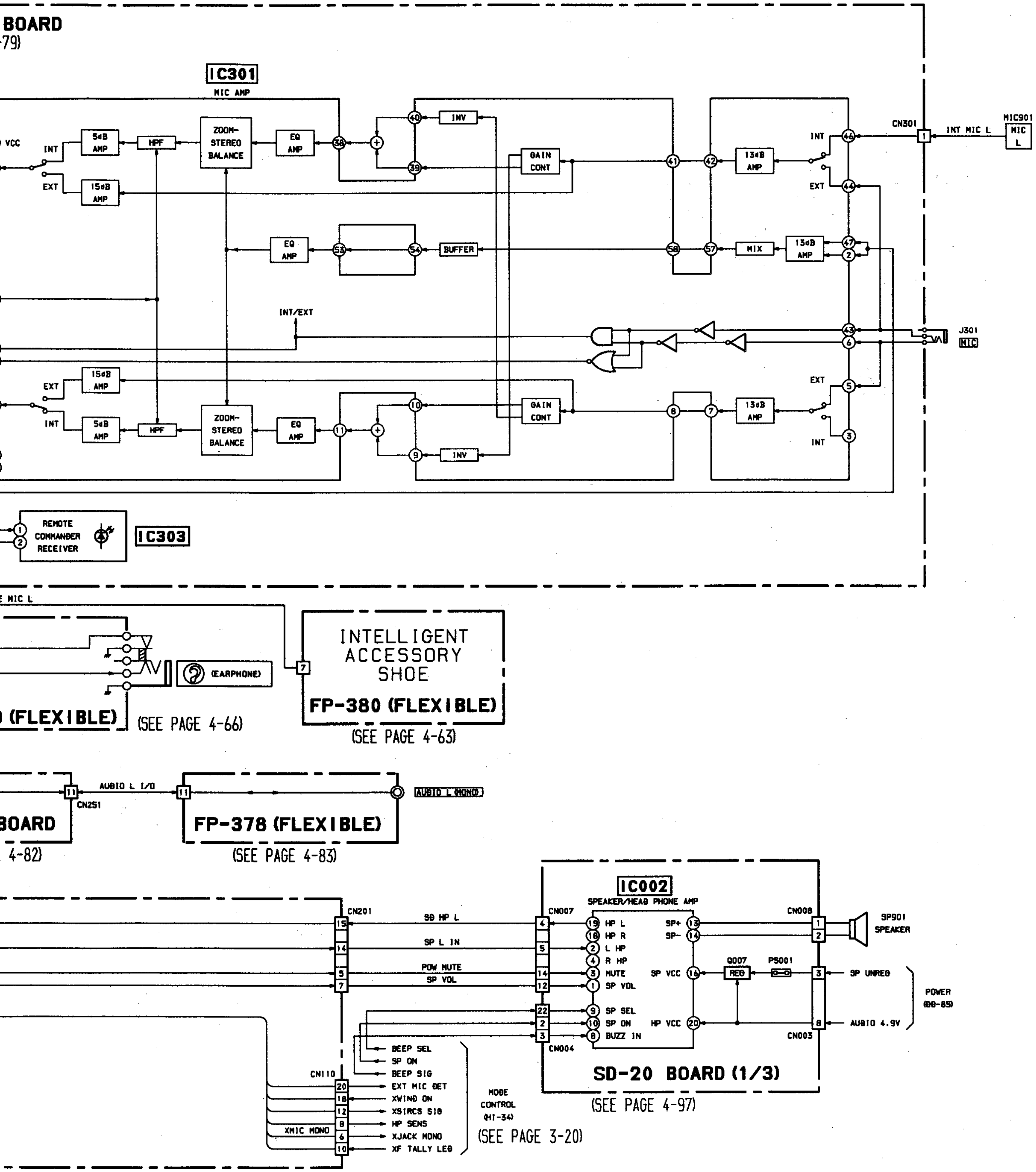

MA-262 BOARD
(SEE PAGE 4-79)
AGC
MIC (L)
LINE (L)
MIC (R)
LINE (R)
HP (L)
LINE (L)
LINE HP (R)
62
64
4
2
50
49
52
Q578
Q585
Q588
Q579
Q587
Q580, 586
BUFFER
AU IN/OUT
CN107
AU 3.2V
AU 3.2V
MIC L
MIC R
XWIND ON
XMIC MONO
EXT MIC SET
ZOOM MIC CONT
SHOE MIC L
A 4.9V
XSIRCS SIG
XF TALLY LED
CN303
VCC
INT
EXT
5dB AMP
15dB AMP
HPF
15dB AMP
5dB AMP
REMOTE COMMANDER RECEIVER
IC303
D303 (TALLY)
CN205
SHOE MIC L
CN108
XHP SENSE
HP OUT R
HP OUT L
FR
FR
CN109
AUDIO L I/O
AUDIO R I/O
XJACK MONO
AV-34 BOARD
CN252
CN251
(SEE PAGE 4-83)
AUDIO L I/O
AUDIO R I/O
BUS DECODER
60
59
58
VC SO
XVC SCK
XCS AU
Q572
POWER MUTE
53
ON/OFF MUTE SWITCH
54
AUDIO 4.9V
56
63
AU 3.2V
SWP (IC117④)
XCS AU (IC117㉕)
VC SI (IC117㉝)
VC SO (IC117㉞)
VC SCK (IC117㉟)
VTR/CAMERA CONTROL
(SEE PAGE 3-13)


IC301
MIC AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INV
GAIN CONT
13dB AMP
INT
EXT
CN301
INT MIC L
MIC901
MIC L
BUFFER
MIX
INT/EXT
J301
MIC
MIC902
INT MIC R
MIC R
CN302
IC303
MIC L
FP-379 (FLEXIBLE)
(HEADPHONES)
(SEE PAGE 4-66)
INTELLIGENT ACCESSORY SHOE
FP-380 (FLEXIBLE)
(SEE PAGE 4-63)
FP-378 (FLEXIBLE)
(SEE PAGE 4-83)
AUDIO L I/O
AUDIO R I/O
AUDIO L (MONO)
AUDIO R
IC002
SPEAKER/HEAD PHONE AMP
CN201
SB HP L
SB HP R
SP L IN
SP R IN
POW MUTE
SP VOL
CN007
HP L
HP R
L HP
R HP
MUTE
SP VOL
SP+
SP-
SP VCC
HP VCC
CN008
SP901
SPEAKER
Q007
REG
PS001
SP UNREG
POWER (DD-85)
AUDIO 4.9V
CN003
SP SEL
SP ON
BUZZ IN
CN004
BEEP SEL
SP ON
BEEP SIG
EXT MIC DET
XWIND ON
XSIRCS SIG
HP SENS
XJACK MONO
XF TALLY LED
CN110
XMIC MONO
MODE CONTROL (HI-34)
(SEE PAGE 3-20)
SD-20 BOARD (1/3)
(SEE PAGE 4-93)

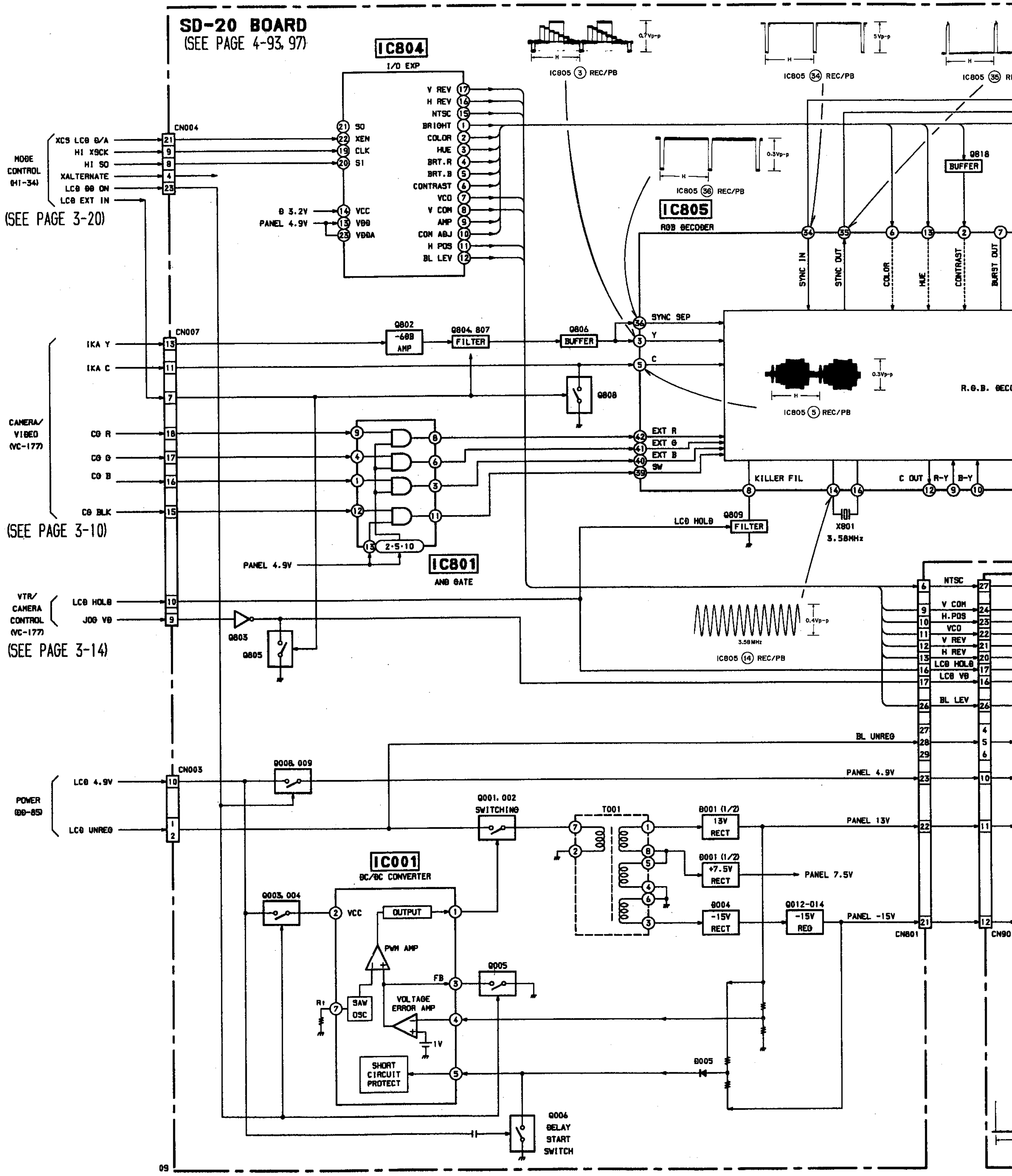
3-7. AUDIO BLOCK DIAGRAM (MONAURAL)

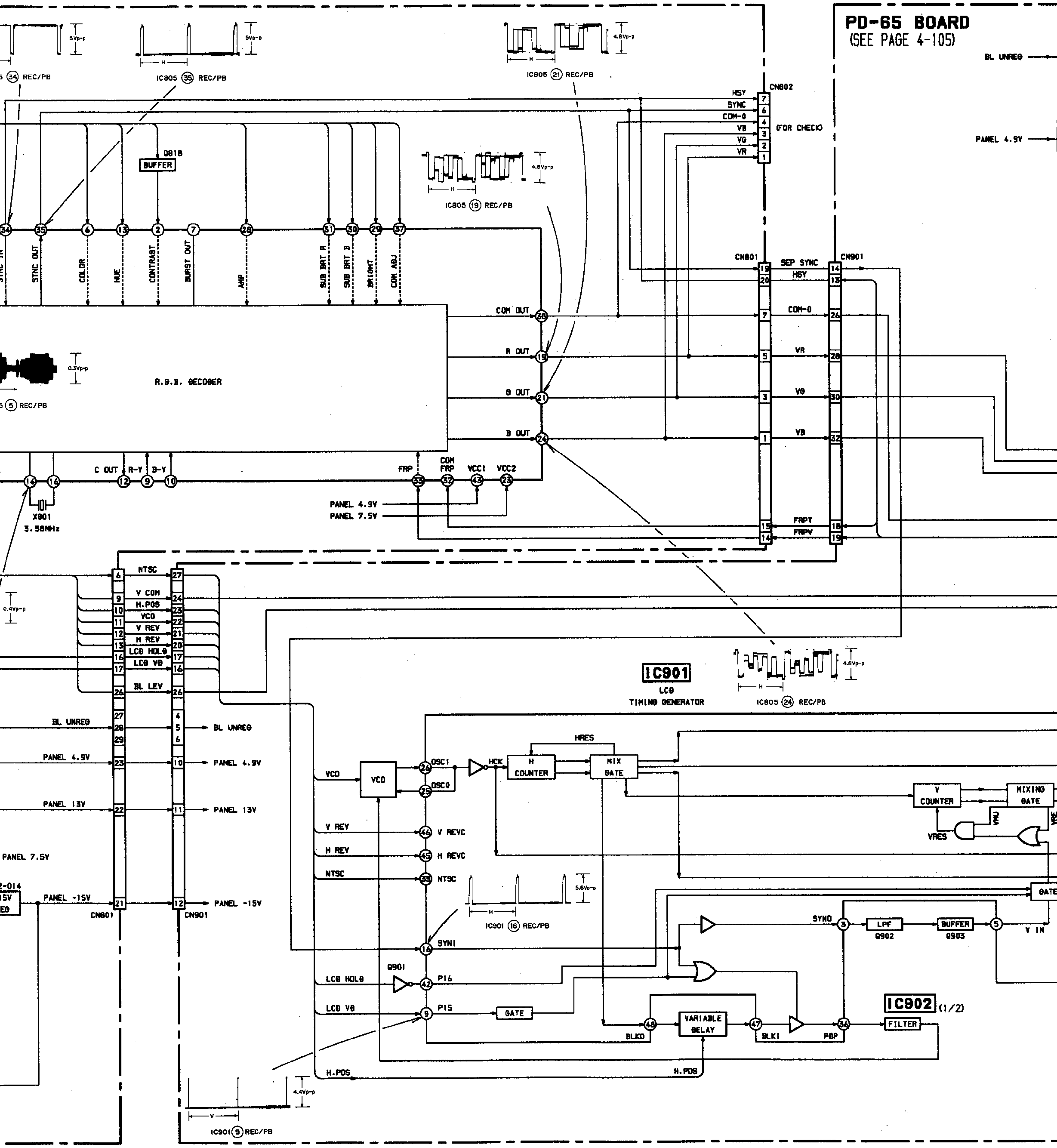

VC-177 BOARD (SEE PAGE 4-53)
IC109
AFM PROCESS
CN108
CPC
(FOR CHECK)
16
15
PBF MON
REC AFM
17
12
FP-379
(FLEXIBLE)
(SEE PAGE 4-66)
(SEE PAGE 3-10)
CAMERA/
VIDEO
AU FADE
(IC108 ⑫)
PB RF
(IC101 ⑭)
AU BPF
(IC108 ⑪)
1.5M DEV
(IC108 ⑨)
REC AFM
(IC101 ㊺)
23
22
26
36
24
29
37
38
31
1.5M BPF
PB 1.5M
MOD/DEMOD
LP
SP
LP EMP
PB
REC
LPF
NR
0.4Vp-p
2V
IC109 ㉒ PB
0.22Vp-p
1.5MHz
IC109 ㉔ REC
FSC
(IC106 ㊹)
AU XIN/OUT
(IC106 ㉖)
ZOOM CONT
(IC108 ⑱)
SP VOL
(IC108 ⑭)
CAMERA/
VIDEO
(SEE PAGE 3-10)
SWP
09

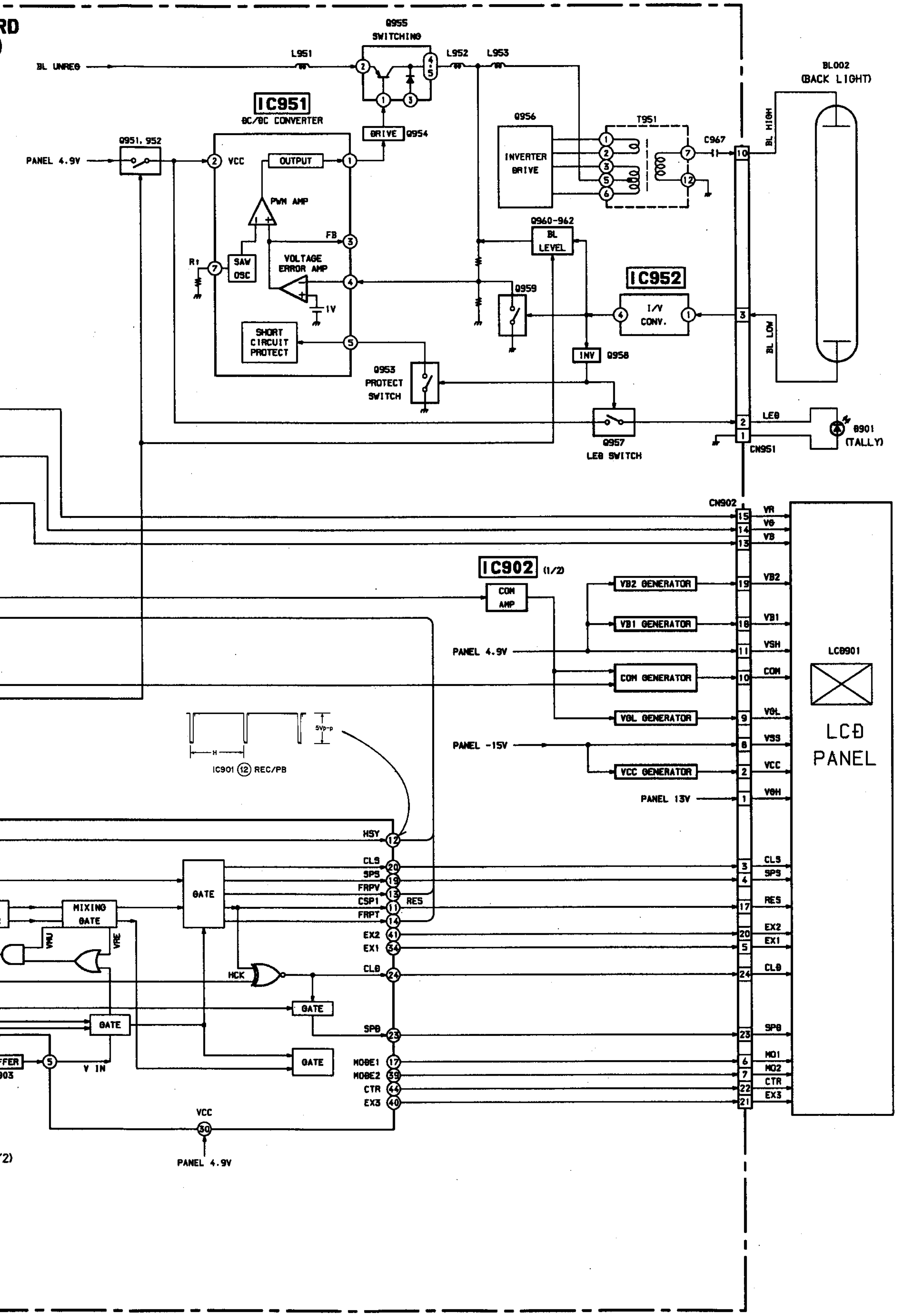

MA-262 BOARD
(SEE PAGE 4-79)
LP
SP
LP EMP
PB
REC
FADE
AGC
MIC
LINE
LPF
NR
DEMOD
MUTE
HP (L)
LINE (L)
LINE HP (R)
EZ IN/OUT
Q578
Q580, 586
BUFFER
AU IN/OUT
BUS DECODER
VC SO
XVC SCK
XCS AU
Q572
ON/OFF MUTE SWITCH
POWER MUTE
AUDIO 4.9V
AU 3.2V
SWP
CN107
AU 3.2V
MIC L
XWIND ON
XMIC MONO
EXT MIC DET
ZOOM MIC CONT
SHOE MIC L
A 4.9V
XSIRCS SIG
XF TALLY LED
CN303
VCC
INT
EXT
REMOTE COMMANDER RECEIVER
D303 (TALLY)
CN205
SHOE MIC L
CN108
XHP SENSE
HP OUT L
FP-379 (FLEXI
CN109
AUDIO L I/O
CN252
AV-34 BOARD
(SEE PAGE 4-82)
SWP (IC117④)
XCS AU (IC117㉕)
VC SO (IC117㉞)
VC SCK (IC117㉟)
VTR/CAMERA CONTROL
(SEE PAGE 3-13)


BOARD
-79)
IC301
MIC AMP
VCC
INT
EXT
5dB AMP
15dB AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INV
GAIN CONT
13dB AMP
BUFFER
MIX
INT/EXT
CN301
INT MIC L
MIC901
MIC L
J301
MIC
REMOTE COMMANDER RECEIVER
IC303
E MIC L
(EARPHONE)
(FLEXIBLE)
(SEE PAGE 4-66)
INTELLIGENT ACCESSORY SHOE
FP-380 (FLEXIBLE)
(SEE PAGE 4-63)
AUDIO L I/O
CN251
BOARD
4-82)
FP-378 (FLEXIBLE)
(SEE PAGE 4-83)
AUDIO L (MONO)
IC002
SPEAKER/HEAD PHONE AMP
CN201
CN007
CN008
SD HP L
SP L IN
POW MUTE
SP VOL
HP L
HP R
L HP
R HP
MUTE
SP VOL
SP+
SP-
SP VCC
HP VCC
SP SEL
SP ON
BUZZ IN
Q007
REG
PS001
SP901
SPEAKER
SP UNREG
AUDIO 4.9V
POWER
(DD-85)
CN003
CN004
BEEP SEL
SP ON
BEEP SIG
CN110
EXT MIC DET
XWIND ON
XSIRCS SIG
HP SENS
XMIC MONO
XJACK MONO
XF TALLY LED
MODE CONTROL
(HI-34)
(SEE PAGE 3-20)
SD-20 BOARD (1/3)
(SEE PAGE 4-97)

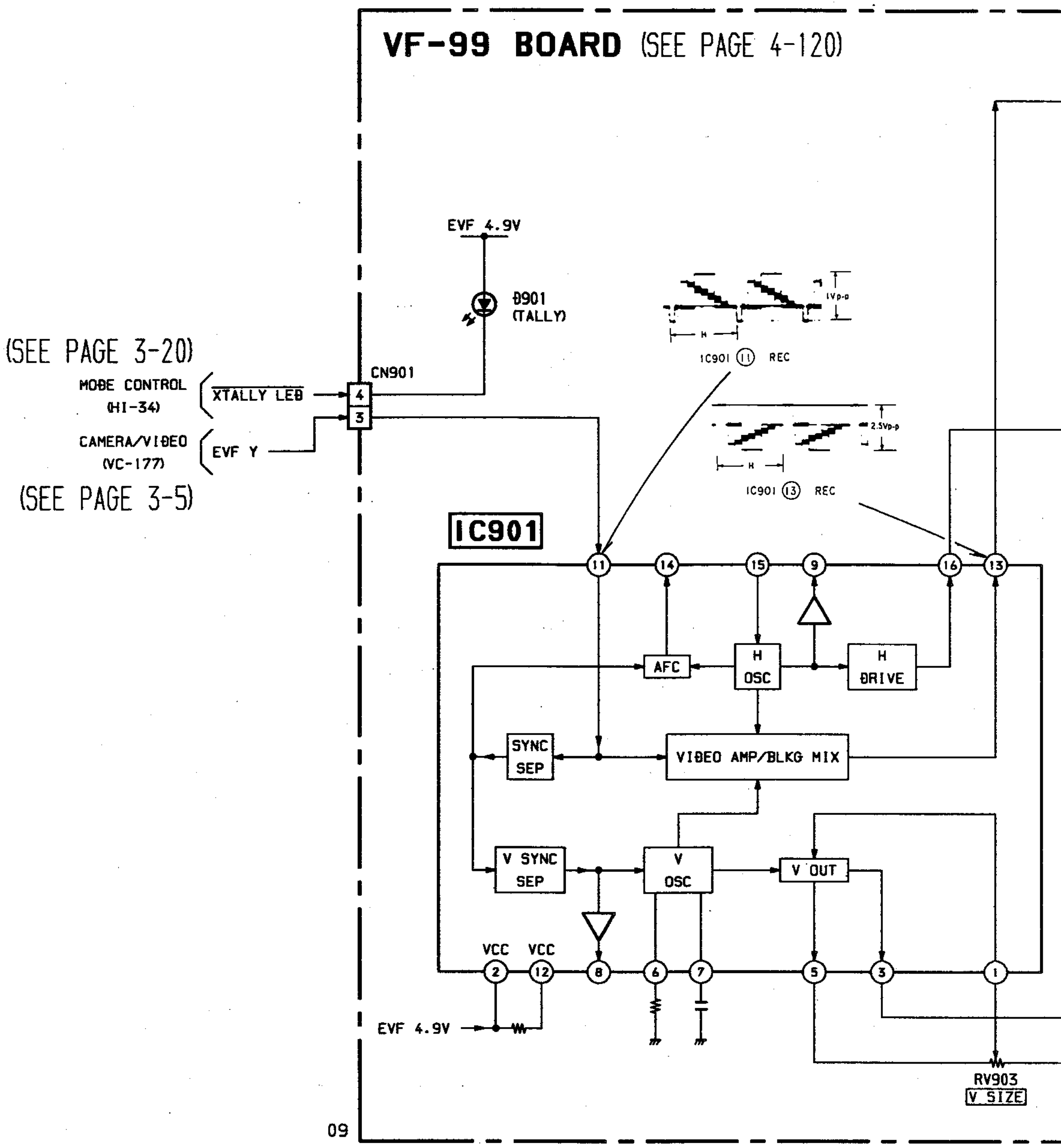
3-8. LCD BLOCK DIAGRAM


SD-20 BOARD
(SEE PAGE 4-93, 97)
IC804
I/O EXP
IC805 ③ REC/PB
IC805 ㉞ REC/PB
IC805 ㉟ REC/PB
0.7Vp-p
5Vp-p
0.3Vp-p
IC805 ㊱ REC/PB
IC805
RGB DECODER
Q818
BUFFER
MODE CONTROL (HI-34)
XCS LCD D/A
HI XSCK
HI SO
XALTERNATE
LCD DD ON
LCD EXT IN
(SEE PAGE 3-20)
CN004
SO
XEN
CLK
SI
D 3.2V
PANEL 4.9V
VCC
VDD
VDDA
V REV
H REV
NTSC
BRIGHT
COLOR
HUE
BRT.R
BRT.B
CONTRAST
VCO
V COM
AMP
COM ADJ
H POS
BL LEV
SYNC IN
SYNC OUT
COLOR
HUE
CONTRAST
BURST OUT
SYNC SEP
Y
C
R.G.B. DEC
IC805 ⑤ REC/PB
CAMERA/VIDEO (VC-177)
IKA Y
IKA C
CD R
CD G
CD B
CD BLK
(SEE PAGE 3-10)
CN007
Q802
-6DB AMP
Q804, 807
FILTER
Q806
BUFFER
Q808
EXT R
EXT G
EXT B
SW
KILLER FIL
C OUT
R-Y
B-Y
IC801
AND GATE
2·5·10
PANEL 4.9V
LCD HOLD
Q809
FILTER
X801
3.58MHz
VTR/CAMERA CONTROL (VC-177)
LCD HOLD
JOG VD
(SEE PAGE 3-14)
Q803
Q805
0.4Vp-p
3.58MHz
IC805 ⑭ REC/PB
NTSC
V COM
H.POS
VCO
V REV
H REV
LCD HOLD
LCD VD
BL LEV
BL UNREG
PANEL 4.9V
PANEL 13V
PANEL 7.5V
PANEL -15V
CN801
CN90
POWER (DD-85)
LCD 4.9V
LCD UNREG
CN003
Q008, 009
Q001, 002
SWITCHING
T001
D001 (1/2)
13V RECT
D001 (1/2)
+7.5V RECT
D004
-15V RECT
Q012-014
-15V REG
IC001
DC/DC CONVERTER
Q003, 004
VCC
OUTPUT
PWM AMP
FB
Q005
Rt
SAW OSC
VOLTAGE ERROR AMP
1V
SHORT CIRCUIT PROTECT
D005
Q006
DELAY START SWITCH
09

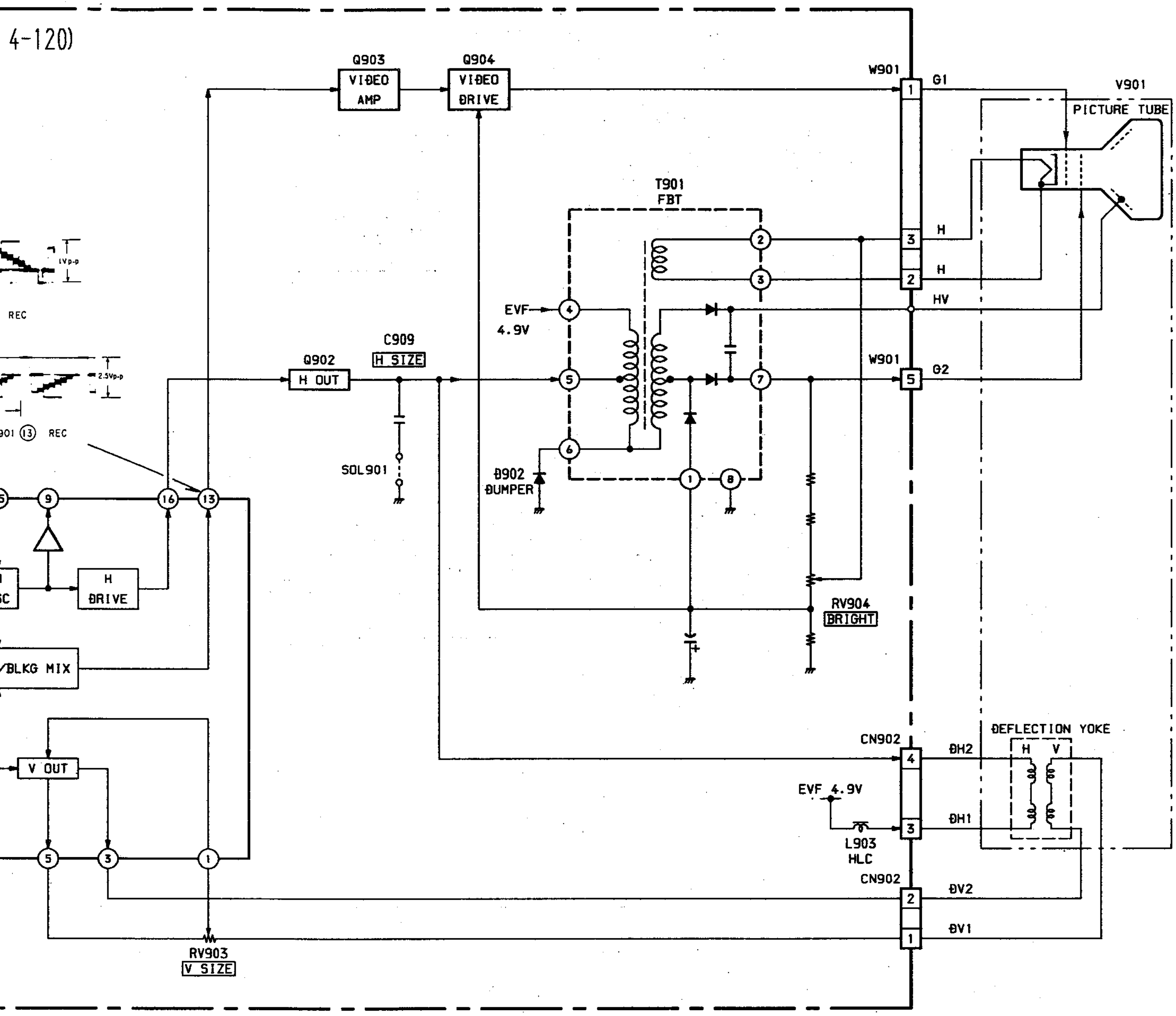

PD-65 BOARD
(SEE PAGE 4-105)
BL UNREG
PANEL 4.9V
5Vp-p
IC805 (34) REC/PB
IC805 (35) REC/PB
4.8Vp-p
IC805 (21) REC/PB
IC805 (19) REC/PB
HSY
SYNC
COM-O
VB
VG
VR
CN802
(FOR CHECK)
Q818
BUFFER
SYNC OUT
COLOR
HUE
CONTRAST
BURST OUT
AMP
SUB BRT R
SUB BRT B
BRIGHT
COM ADJ
CN801
SEP SYNC
CN901
COM OUT
R OUT
G OUT
B OUT
0.3Vp-p
IC805 (5) REC/PB
R.G.B. DECODER
C OUT
R-Y
B-Y
FRP
COM FRP
VCC1
VCC2
X801
3.58MHz
PANEL 4.9V
PANEL 7.5V
FRPT
FRPV
NTSC
V COM
H.POS
VCO
V REV
H REV
LCD HOLD
LCD VD
BL LEV
0.4Vp-p
BL UNREG
PANEL 4.9V
PANEL 13V
PANEL 7.5V
PANEL -15V
CN801
CN901
IC901
LCD
TIMING GENERATOR
IC805 (24) REC/PB
HRES
OSC1
OSC0
HCK
H COUNTER
MIX GATE
V COUNTER
MIXING GATE
VRES
VHU
V REVC
H REVC
NTSC
5.6Vp-p
IC901 (16) REC/PB
GATE
SYNO
LPF
Q902
BUFFER
Q903
V IN
SYNI
Q901
P16
P15
GATE
IC902 (1/2)
VARIABLE DELAY
BLKO
BLKI
PGP
FILTER
H.POS
H.POS
4.4Vp-p
IC901 (9) REC/PB


RD
BL UNREG
L951
Q955
SWITCHING
L952
L953
BL002
(BACK LIGHT)
IC951
DC/DC CONVERTER
DRIVE
Q954
Q956
INVERTER DRIVE
T951
C967
BL HIGH
Q951, 952
PANEL 4.9V
VCC
OUTPUT
PWM AMP
FB
Rt
SAW OSC
VOLTAGE ERROR AMP
1V
SHORT CIRCUIT PROTECT
Q960-962
BL LEVEL
Q959
IC952
I/V CONV.
BL LOW
INV
Q958
Q953
PROTECT SWITCH
Q957
LED SWITCH
LED
D901
(TALLY)
CN951
CN902
VR
VG
VB
IC902 (1/2)
COM AMP
VB2 GENERATOR
VB2
VB1 GENERATOR
VB1
PANEL 4.9V
VSH
LCD901
COM GENERATOR
COM
VGL GENERATOR
VGL
PANEL -15V
VSS
LCD PANEL
VCC GENERATOR
VCC
PANEL 13V
VGH
5Vp-p
H
IC901 (12) REC/PB
HSY
CLS
SPS
FRPV
CSP1
RES
FRPT
EX2
EX1
GATE
MIXING GATE
VMU
VRE
HCK
CLD
SPD
MODE1
MODE2
CTR
EX3
MD1
MD2
FFER
903
V IN
VCC
PANEL 4.9V
/2)

3-9. B/W EVF BLOCK DIAGRAM

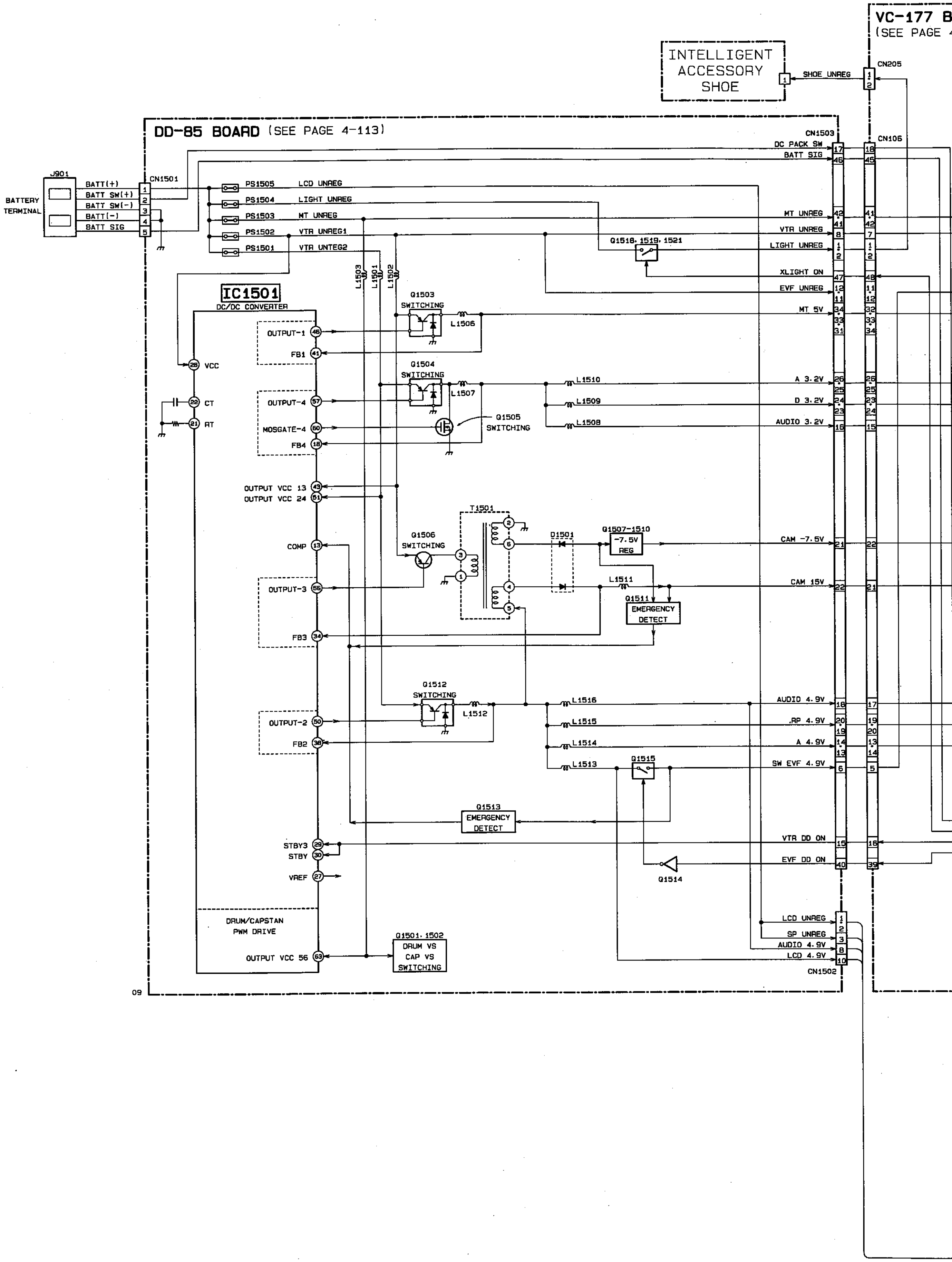

VF-99 BOARD (SEE PAGE 4-120)
(SEE PAGE 3-20)
MODE CONTROL
(HI-34)
XTALLY LED
CAMERA/VIDEO
(VC-177)
EVF Y
(SEE PAGE 3-5)
CN901
4
3
EVF 4.9V
D901
(TALLY)
1Vp-p
H
IC901 ⑪ REC
2.5Vp-p
H
IC901 ⑬ REC
IC901
⑪
⑭
⑮
⑨
⑯
⑬
AFC
H
OSC
H
DRIVE
SYNC
SEP
VIDEO AMP/BLKG MIX
V SYNC
SEP
V
OSC
V OUT
VCC
VCC
②
⑫
⑧
⑥
⑦
⑤
③
①
EVF 4.9V
RV903
V SIZE
09

4-120)

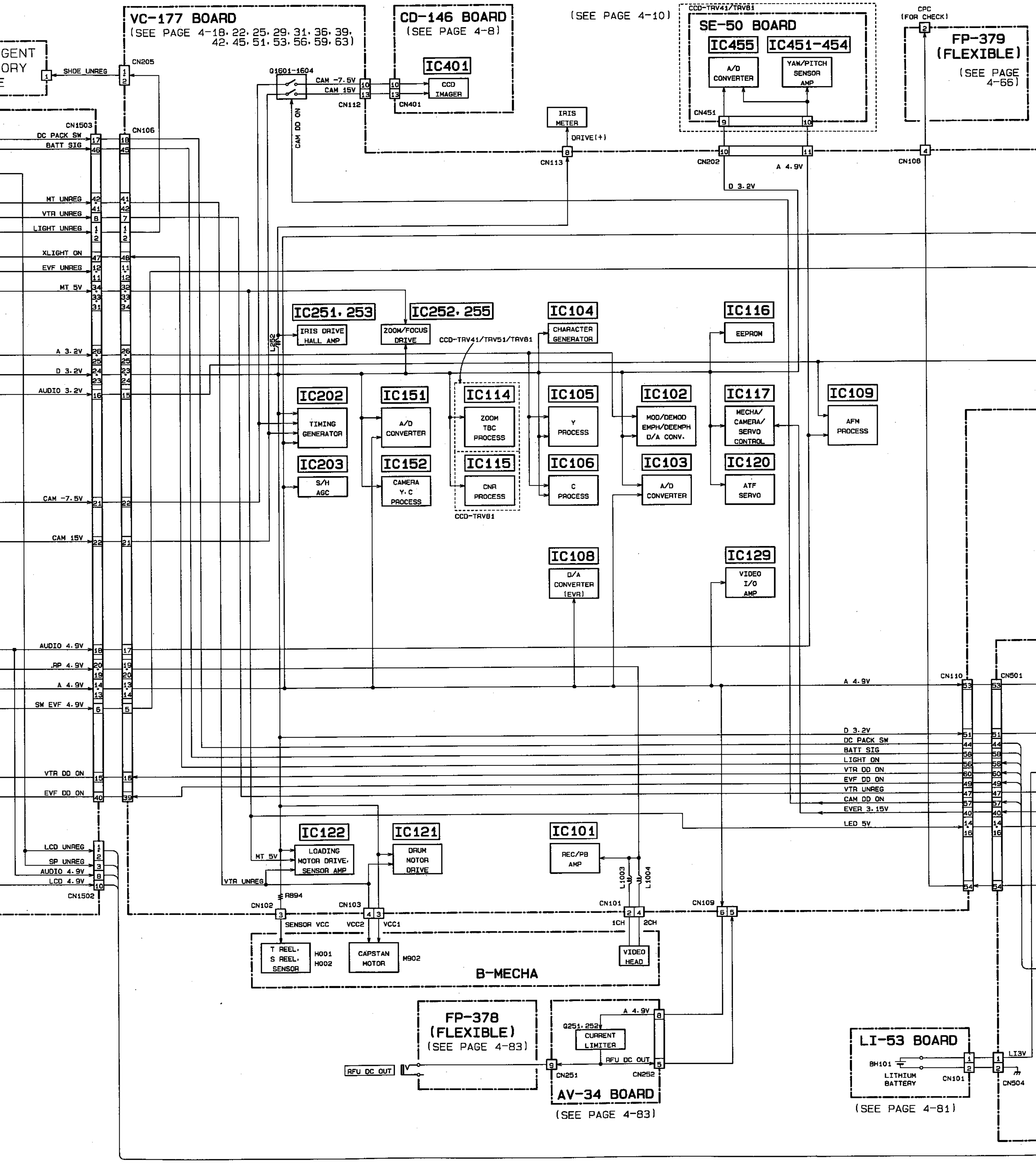


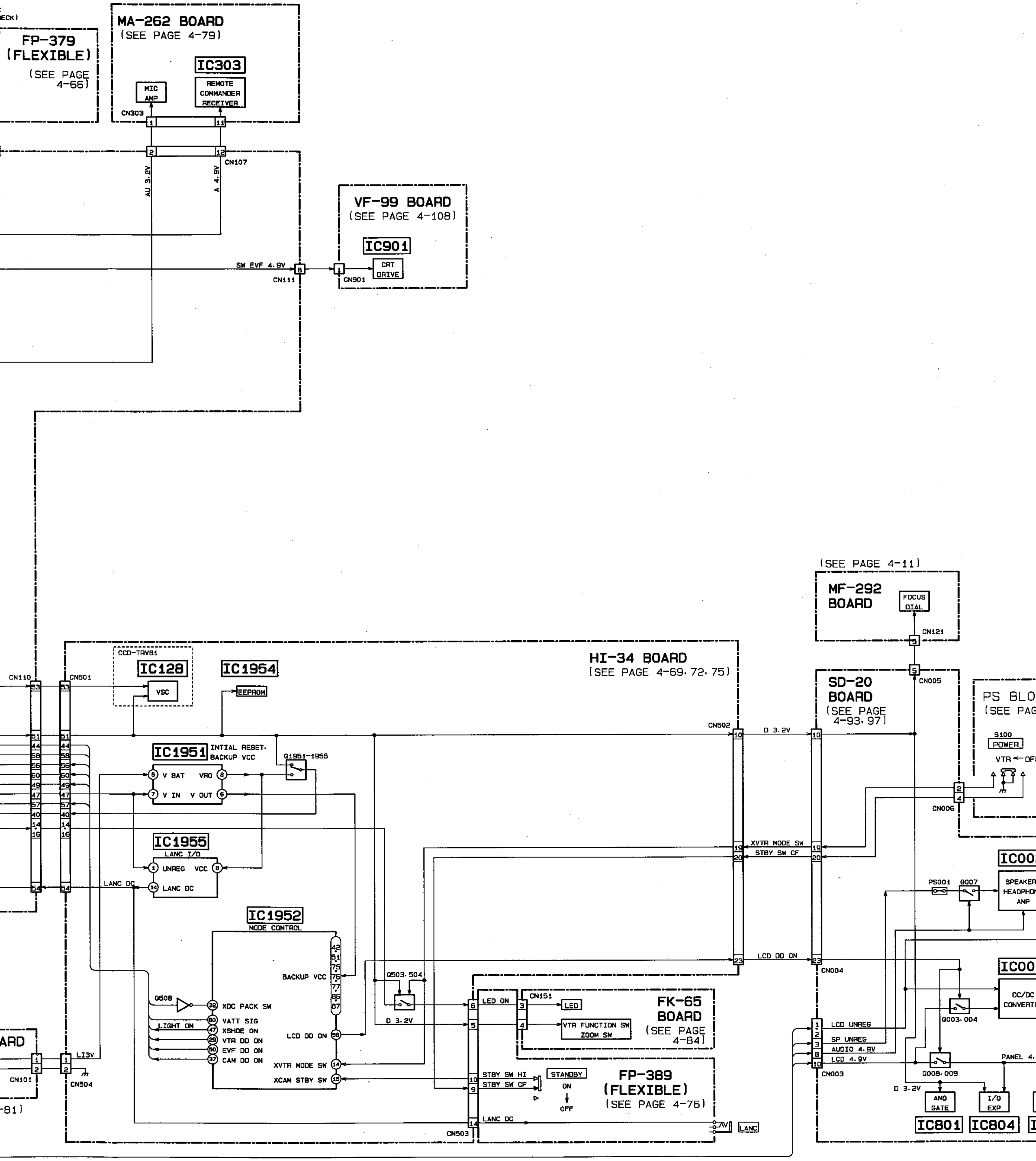
Q903
VIDEO AMP
Q904
VIDEO DRIVE
W901
G1
V901
PICTURE TUBE
T901
FBT
H
H
HV
EVF
4.9V
1Vp-p
REC
2.5Vp-p
901 ⑬ REC
Q902
H OUT
C909
H SIZE
W901
G2
SOL901
D902
DUMPER
H DRIVE
/BLKG MIX
V OUT
RV903
V SIZE
RV904
BRIGHT
CN902
DH2
DEFLECTION YOKE
H
V
EVF 4.9V
L903
HLC
DH1
CN902
DV2
DV1

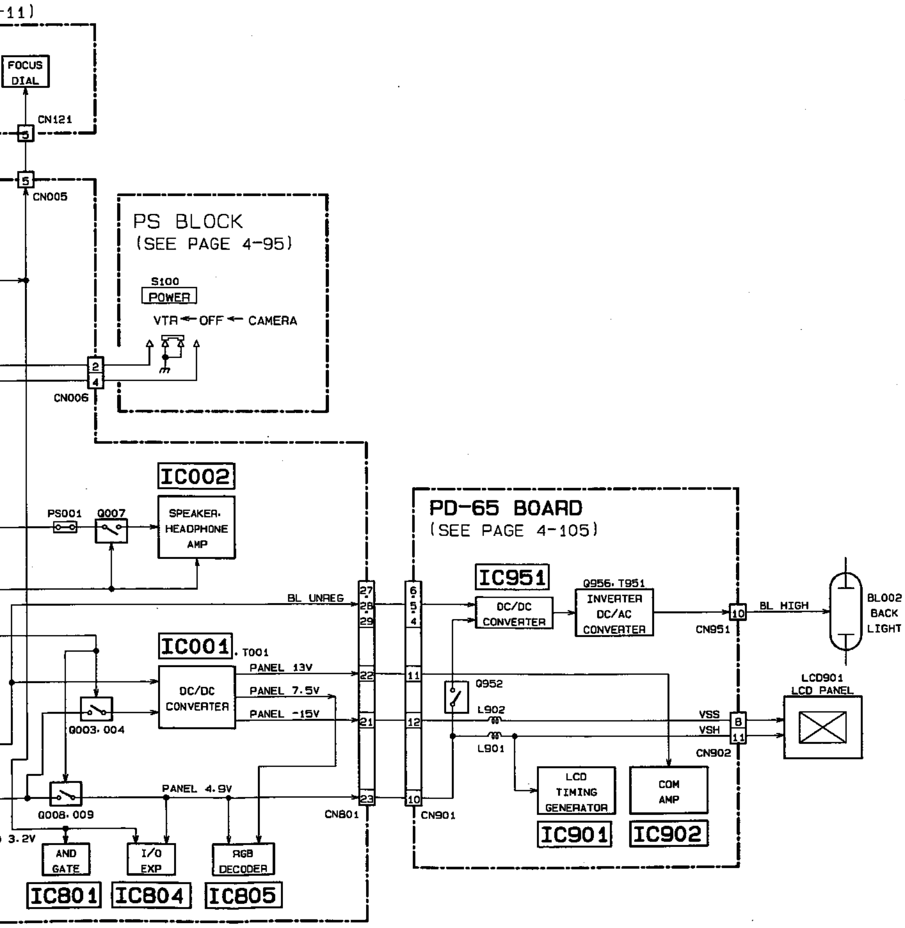
3-10. POWER SUPPLY BLOCK DIAGRAM



VC-177 B
(SEE PAGE 4
INTELLIGENT ACCESSORY SHOE
SHOE UNREG
CN205
DD-85 BOARD (SEE PAGE 4-113)
CN1503
CN106
DC PACK SW
BATT SIG
J901
BATTERY TERMINAL
BATT(+)
BATT SW(+)
BATT SW(-)
BATT(-)
BATT SIG
CN1501
PS1505
PS1504
PS1503
PS1502
PS1501
LCD UNREG
LIGHT UNREG
MT UNREG
VTR UNREG1
VTR UNTEG2
Q1518, 1519, 1521
MT UNREG
VTR UNREG
LIGHT UNREG
XLIGHT ON
EVF UNREG
MT 5V
L1503
L1501
L1502
IC1501
DC/DC CONVERTER
Q1503 SWITCHING
L1506
OUTPUT-1
FB1
VCC
CT
RT
Q1504 SWITCHING
L1507
OUTPUT-4
MOSGATE-4
FB4
Q1505 SWITCHING
L1510
L1509
L1508
A 3.2V
D 3.2V
AUDIO 3.2V
OUTPUT VCC 13
OUTPUT VCC 24
T1501
Q1506 SWITCHING
D1501
Q1507-1510
-7.5V REG
CAM -7.5V
COMP
L1511
CAM 15V
OUTPUT-3
Q1511 EMERGENCY DETECT
FB3
Q1512 SWITCHING
L1512
L1516
L1515
L1514
L1513
AUDIO 4.9V
RP 4.9V
A 4.9V
SW EVF 4.9V
OUTPUT-2
FB2
Q1515
Q1513 EMERGENCY DETECT
STBY3
STBY
VREF
VTR DD ON
EVF DD ON
Q1514
DRUM/CAPSTAN PWM DRIVE
OUTPUT VCC 56
Q1501, 1502 DRUM VS CAP VS SWITCHING
LCD UNREG
SP UNREG
AUDIO 4.9V
LCD 4.9V
CN1502
09


VC-177 BOARD
(SEE PAGE 4-18, 22, 25, 29, 31, 36, 39, 42, 45, 51, 53, 56, 59, 63)
CD-146 BOARD
(SEE PAGE 4-8)
(SEE PAGE 4-10)
CCD-TRV41/TRV81
SE-50 BOARD
IC455
IC451-454
A/D CONVERTER
YAW/PITCH SENSOR AMP
CN451
CPC (FOR CHECK)
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
GENT
ORY
SHOE UNREG
CN205
Q1601-1604
CAM -7.5V
CAM 15V
CN112
IC401
CCD IMAGER
CN401
IRIS METER
DRIVE(+)
CN113
CN202
A 4.9V
D 3.2V
CN108
CAM DD ON
CN1503
CN106
DC PACK SW
BATT SIG
MT UNREG
VTR UNREG
LIGHT UNREG
XLIGHT ON
EVF UNREG
MT 5V
IC251, 253
IRIS DRIVE HALL AMP
L252
IC252, 255
ZOOM/FOCUS DRIVE
IC104
CHARACTER GENERATOR
CCD-TRV41/TRV51/TRV81
IC116
EEPROM
A 3.2V
D 3.2V
AUDIO 3.2V
IC202
TIMING GENERATOR
IC151
A/D CONVERTER
IC114
ZOOM TBC PROCESS
IC105
Y PROCESS
IC102
MOD/DEMOD EMPH/DEEMPH D/A CONV.
IC117
MECHA/ CAMERA/ SERVO CONTROL
IC109
AFM PROCESS
IC203
S/H AGC
IC152
CAMERA Y, C PROCESS
IC115
CNR PROCESS
CCD-TRV81
IC106
C PROCESS
IC103
A/D CONVERTER
IC120
ATF SERVO
CAM -7.5V
CAM 15V
IC108
D/A CONVERTER (EVR)
IC129
VIDEO I/O AMP
AUDIO 4.9V
RP 4.9V
A 4.9V
SW EVF 4.9V
CN110
CN501
A 4.9V
D 3.2V
DC PACK SW
BATT SIG
LIGHT ON
VTR DD ON
EVF DD ON
VTR UNREG
CAM DD ON
EVER 3.15V
LED 5V
VTR DD ON
EVF DD ON
LCD UNREG
SP UNREG
AUDIO 4.9V
LCD 4.9V
CN1502
IC122
LOADING MOTOR DRIVE, SENSOR AMP
MT 5V
VTR UNREG
R894
IC121
DRUM MOTOR DRIVE
IC101
REC/PB AMP
L1003
L1004
CN102
CN103
CN101
CN109
SENSOR VCC
VCC2
VCC1
1CH
2CH
T REEL, S REEL, SENSOR
H001
H002
CAPSTAN MOTOR
M902
VIDEO HEAD
B-MECHA
FP-378 (FLEXIBLE)
(SEE PAGE 4-83)
RFU DC OUT
A 4.9V
Q251, 252
CURRENT LIMITER
RFU DC OUT
CN251
CN252
AV-34 BOARD
(SEE PAGE 4-83)
LI-53 BOARD
BH101
LITHIUM BATTERY
CN101
LI3V
CN504
(SEE PAGE 4-81)


ECK)
FP-379 (FLEXIBLE)
(SEE PAGE 4-66)
MA-262 BOARD
(SEE PAGE 4-79)
IC303
MIC AMP
REMOTE COMMANDER RECEIVER
CN303
CN107
AU 3.2V
A 4.9V
VF-99 BOARD
(SEE PAGE 4-108)
IC901
CRT DRIVE
SW EVF 4.9V
CN111
CN901
(SEE PAGE 4-11)
MF-292 BOARD
FOCUS DIAL
CN121
CN005
CN110
CN501
CCD-TRV81
IC128
VSC
IC1954
EEPROM
HI-34 BOARD
(SEE PAGE 4-69, 72, 75)
SD-20 BOARD
(SEE PAGE 4-93, 97)
PS BLO
(SEE PAG
S100
POWER
VTR ← OFF
CN502
D 3.2V
IC1951
INTIAL RESET, BACKUP VCC
V BAT
VRO
V IN
V OUT
Q1951-1955
CN006
IC1955
LANC I/O
UNREG
VCC
LANC DC
XVTR MODE SW
STBY SW CF
LANC DC
IC00
SPEAKER HEADPHON AMP
PS001
Q007
IC1952
MODE CONTROL
BACKUP VCC
LCD DD ON
LCD DD ON
CN004
ICOO
DC/DC CONVERT
Q003, 004
Q503, 504
Q508
XDC PACK SW
LIGHT ON
VATT SIG
XSHOE ON
VTR DD ON
EVF DD ON
CAM DD ON
XVTR MODE SW
XCAM STBY SW
LED ON
D 3.2V
CN151
LED
VTR FUNCTION SW ZOOM SW
FK-65 BOARD
(SEE PAGE 4-84)
LCD UNREG
SP UNREG
AUDIO 4.9V
LCD 4.9V
CN003
PANEL 4.
Q008, 009
D 3.2V
AND GATE
I/O EXP
IC801
IC804
ARD
CN101
L13V
CN504
-81)
STBY SW HI
STBY SW CF
STANDBY
ON
OFF
FP-389 (FLEXIBLE)
(SEE PAGE 4-76)
LANC DC
LANC
CN503

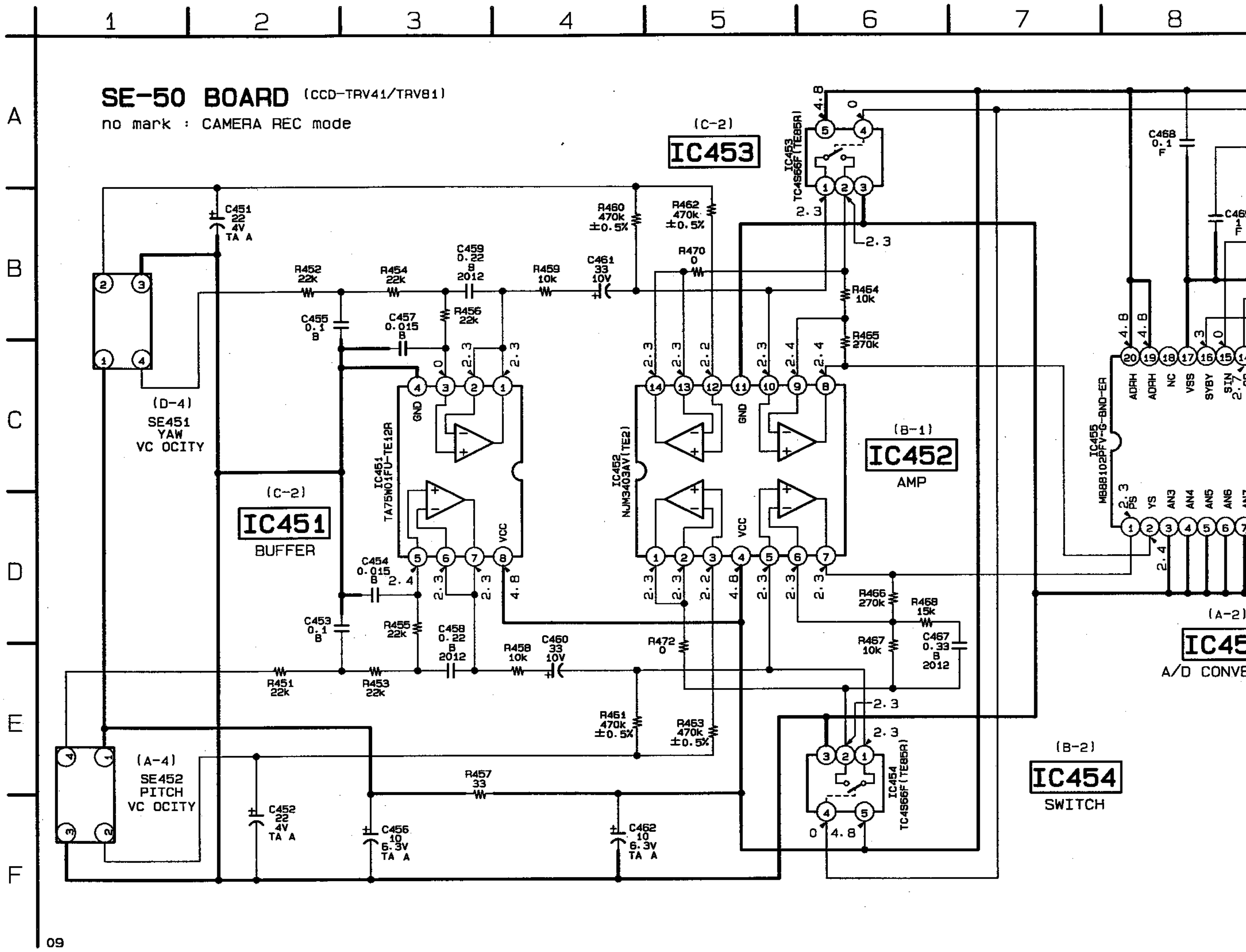


-11)
FOCUS DIAL
CN121
CN005
PS BLOCK
(SEE PAGE 4-95)
S100
POWER
VTR ← OFF ← CAMERA
CN006
IC002
SPEAKER, HEADPHONE AMP
PS001
Q007
BL UNREG
IC001
T001
DC/DC CONVERTER
PANEL 13V
PANEL 7.5V
PANEL -15V
Q003, 004
PANEL 4.9V
Q008, 009
3.2V
AND GATE
I/O EXP
RGB DECODER
IC801
IC804
IC805
CN801
PD-65 BOARD
(SEE PAGE 4-105)
IC951
DC/DC CONVERTER
Q956, T951
INVERTER DC/AC CONVERTER
CN951
BL HIGH
BL002
BACK LIGHT
Q952
L902
L901
VSS
VSH
CN902
LCD901
LCD PANEL
LCD TIMING GENERATOR
COM AMP
IC901
IC902
CN901

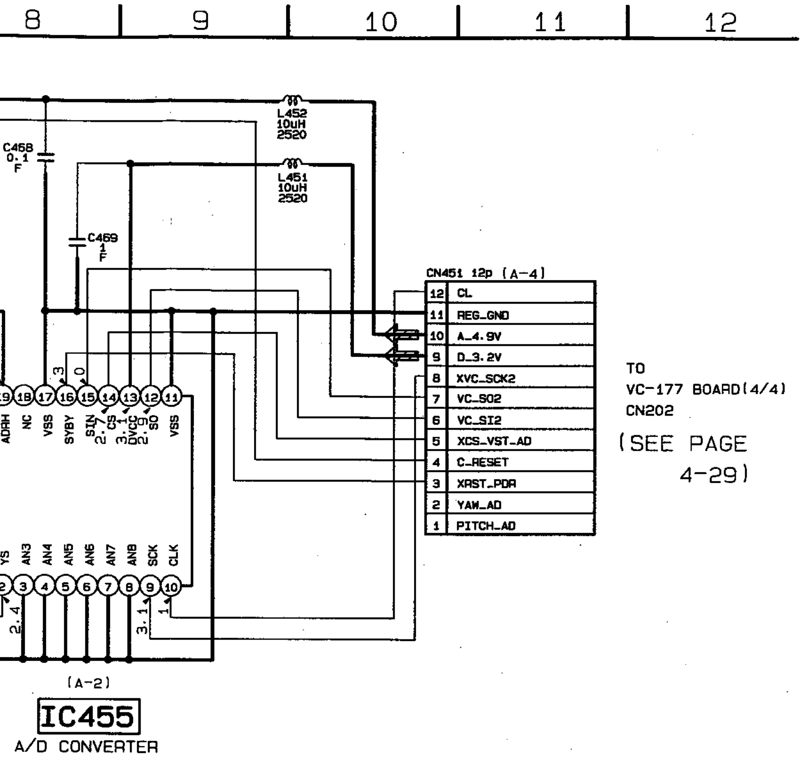
SE-50 (STEADY SHOT) SCHEMATIC DIAGRAM (CCD-TRV41/TRV81)

— Ref No. SE-50 BOARD: 3,000 series —

SE-50 BOARD	
C451	D-1
C452	B-2
C453	A-2
C454	B-2
C455	C-2
C456	C-2
C457	C-2
C458	A-2
C459	C-2
C460	B-4
C461	B-4
C462	B-2
C467	B-2
C468	A-2
C469	A-1
CN451	A-4
IC451	C-2
IC452	B-1
IC453	C-2
IC454	B-2
IC455	A-2
L451	A-1
L452	A-2
R451	A-2
R452	C-2
R453	A-2
R454	C-2
R455	B-2
R456	C-2
R457	B-2
R458	B-2
R459	C-2
R460	C-1
R461	B-1
R462	C-1
R463	B-1
R464	B-2
R465	B-2
R466	B-2
R467	B-2
R468	B-2
R470	C-1
R472	B-1
SE451	D-4
SE452	A-4

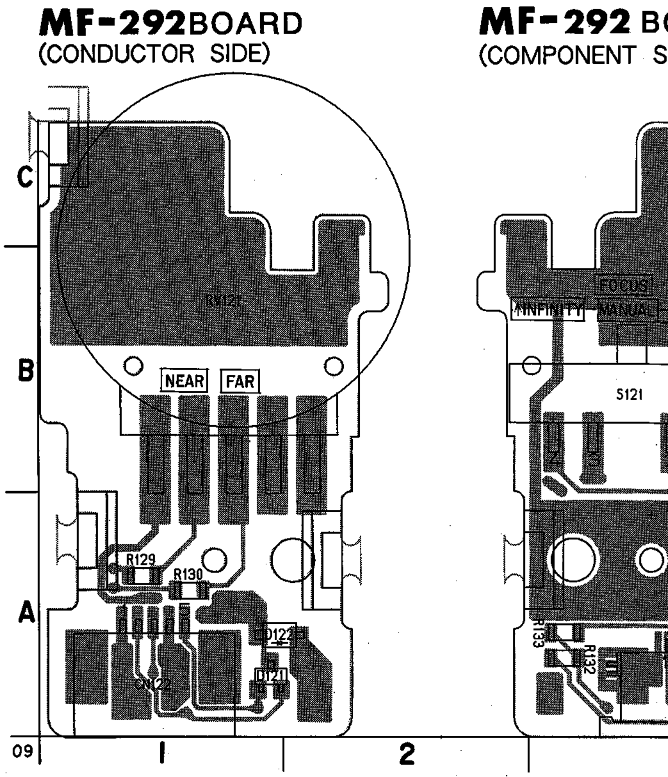


1
2
3
4
5
6
7
8
A
B
C
D
E
F
SE-50 BOARD (CCD-TRV41/TRV81)
no mark : CAMERA REC mode
(C-2)
IC453
IC453 TC4S66F(TE85R)
(D-4)
SE451
YAW
VC OCITY
(C-2)
IC451
BUFFER
IC451 TA75W01FU-TE12R
IC452 NJM3403AV(TE2)
(B-1)
IC452
AMP
IC455 MB88102PFV-G-BND-ER
(A-2)
IC45
A/D CONVE
(B-2)
IC454
SWITCH
IC454 TC4S66F(TE85R)
(A-4)
SE452
PITCH
VC OCITY
GND
VCC
ADRH
NC
VSS
SYBY
PS
YS
AN3
AN4
AN5
AN6
C451 22 4V TA A
C452 22 4V TA A
C453 0.1 B
C454 0.015 B
C455 0.1 B
C456 10 6.3V TA A
C457 0.015 B
C458 0.22 B 2012
C459 0.22 B 2012
C460 33 10V
C461 33 10V
C462 10 6.3V TA A
C467 0.33 B 2012
C468 0.1 F
R451 22k
R452 22k
R453 22k
R454 22k
R455 22k
R456 22k
R457 33
R458 10k
R459 10k
R460 470k ±0.5%
R461 470k ±0.5%
R462 470k ±0.5%
R463 470k ±0.5%
R464 10k
R465 270k
R466 270k
R467 10k
R468 15k
R470 0
R472 0
09


8
9
10
11
12
L452
10uH
2520
L451
10uH
2520
C458
0.1
F
C459
1
F
CN451 12p (A-4)
12 CL
11 REG_GND
10 A_4.9V
9 D_3.2V
8 XVC_SCK2
7 VC_SO2
6 VC_SI2
5 XCS_VST_AD
4 C_RESET
3 XRST_PDR
2 YAW_AD
1 PITCH_AD
TO
VC-177 BOARD(4/4)
CN202
(SEE PAGE
4-29)
ADRH
NC
VSS
SYBY
SIN
CS
DVCC
SO
VSS
YS
AN3
AN4
AN5
AN6
AN7
AN8
SCK
CLK
(A-2)
IC455
A/D CONVERTER

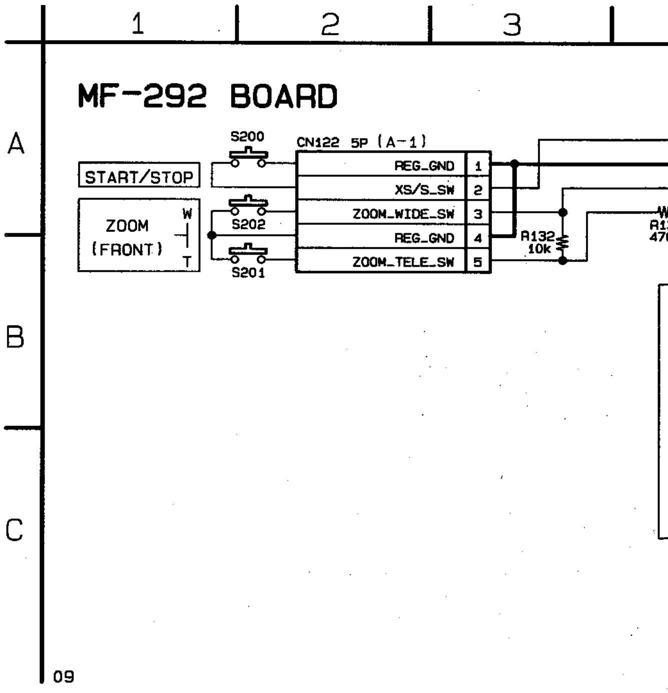
MF-292 (CONTROL SWITCH) PRINTED WIRING BOARD

— Ref No. MF-292 BOARD: 3,000 series —


MF-292BOARD
(CONDUCTOR SIDE)
MF-292 BO
(COMPONENT S
C
B
A
09
1
2
RV121
NEAR
FAR
R129
R130
D122
D121
CN122
FOCUS
INFINITY
MANUAL
S121
R133
R132

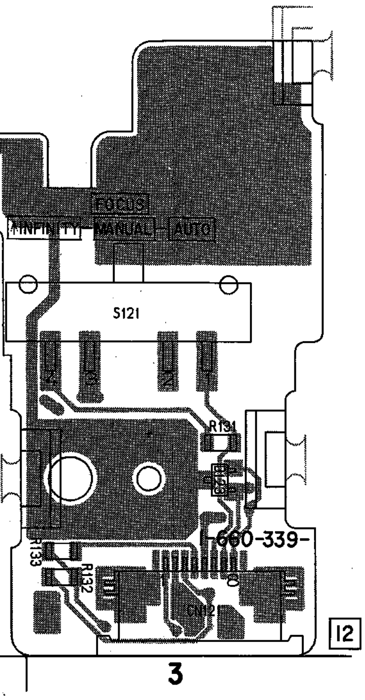
MF-292 (CONTROL SWITCH) SCHEMATIC DIAGRAM

— Ref No. MF-292 BOARD: 3,000 series —

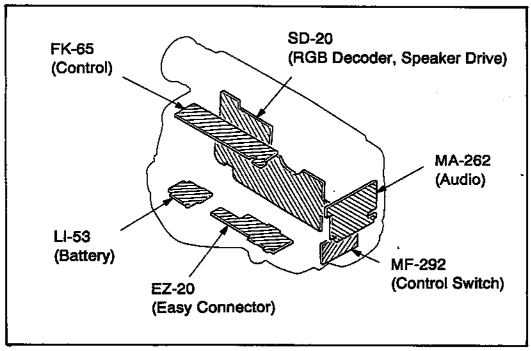

1
2
3
A
B
C
MF-292 BOARD
S200
CN122 5P (A-1)
START/STOP
ZOOM
(FRONT)
W
T
S202
S201
REG_GND 1
XS/S_SW 2
ZOOM_WIDE_SW 3
REG_GND 4
ZOOM_TELE_SW 5
R132
10k
09

RING BOARD

F-292 BOARD
OMPONENT SIDE)


FOCUS
INFINITY
MANUAL
AUTO
S121
R131
660-339-
R133
R132
CN12
12
3

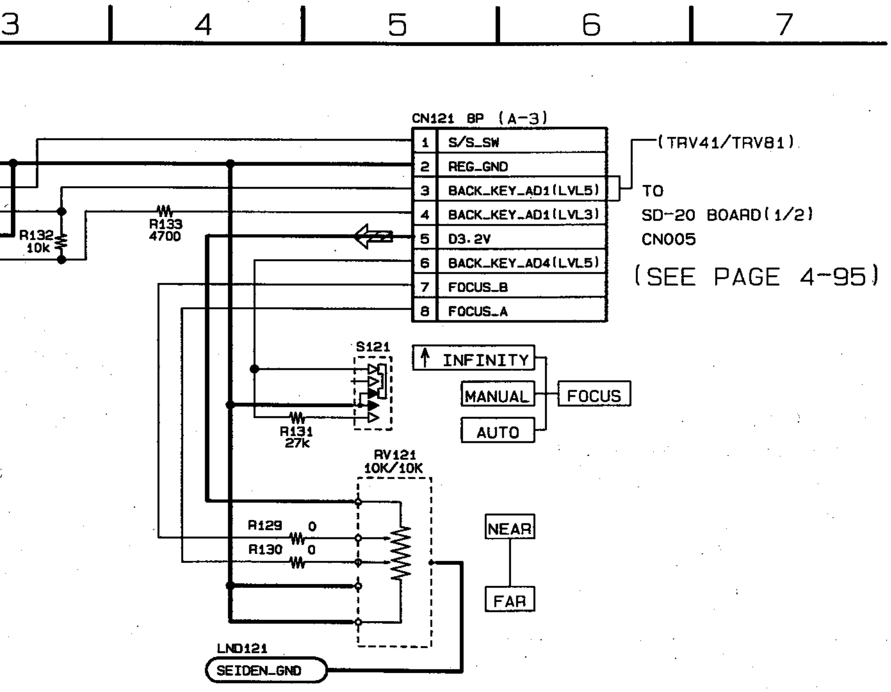
MF-292 BOARD	
CN121	A-3
CN122	A-1
R129	A-1
R130	A-1
R131	A-3
R132	A-3
R133	A-3
RV121	B-1
S121	B-2


FK-65
(Control)
SD-20
(RGB Decoder, Speaker Drive)
MA-262
(Audio)
LI-53
(Battery)
EZ-20
(Easy Connector)
MF-292
(Control Switch)

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

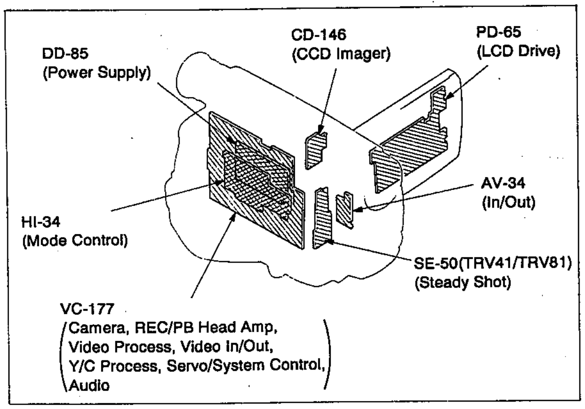
There are few cases that the part isn't mounted in this model is printed on this diagram.

DIAGRAM

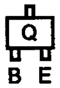

3
4
5
6
7
CN121 8P (A-3)
1 S/S_SW
2 REG_GND
3 BACK_KEY_AD1(LVL5)
4 BACK_KEY_AD1(LVL3)
5 D3.2V
6 BACK_KEY_AD4(LVL5)
7 FOCUS_B
8 FOCUS_A
(TRV41/TRV81)
TO
SD-20 BOARD(1/2)
CN005
(SEE PAGE 4-95)
R132
10k
R133
4700
S121
INFINITY
MANUAL
FOCUS
AUTO
R131
27k
RV121
10K/10K
R129 0
R130 0
NEAR
FAR
LND121
SEIDEN_GND

VC-177 (CAMERA, REC/

— Ref No. VC-177 BOARD: 10,00

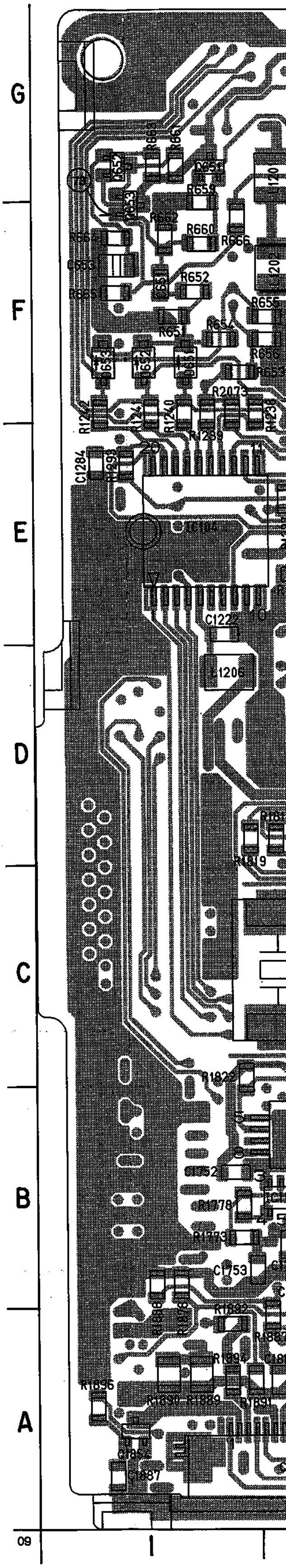

DD-85
(Power Supply)
CD-146
(CCD Imager)
PD-65
(LCD Drive)
AV-34
(In/Out)
HI-34
(Mode Control)
SE-50(TRV41/TRV81)
(Steady Shot)
VC-177
(Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio)

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

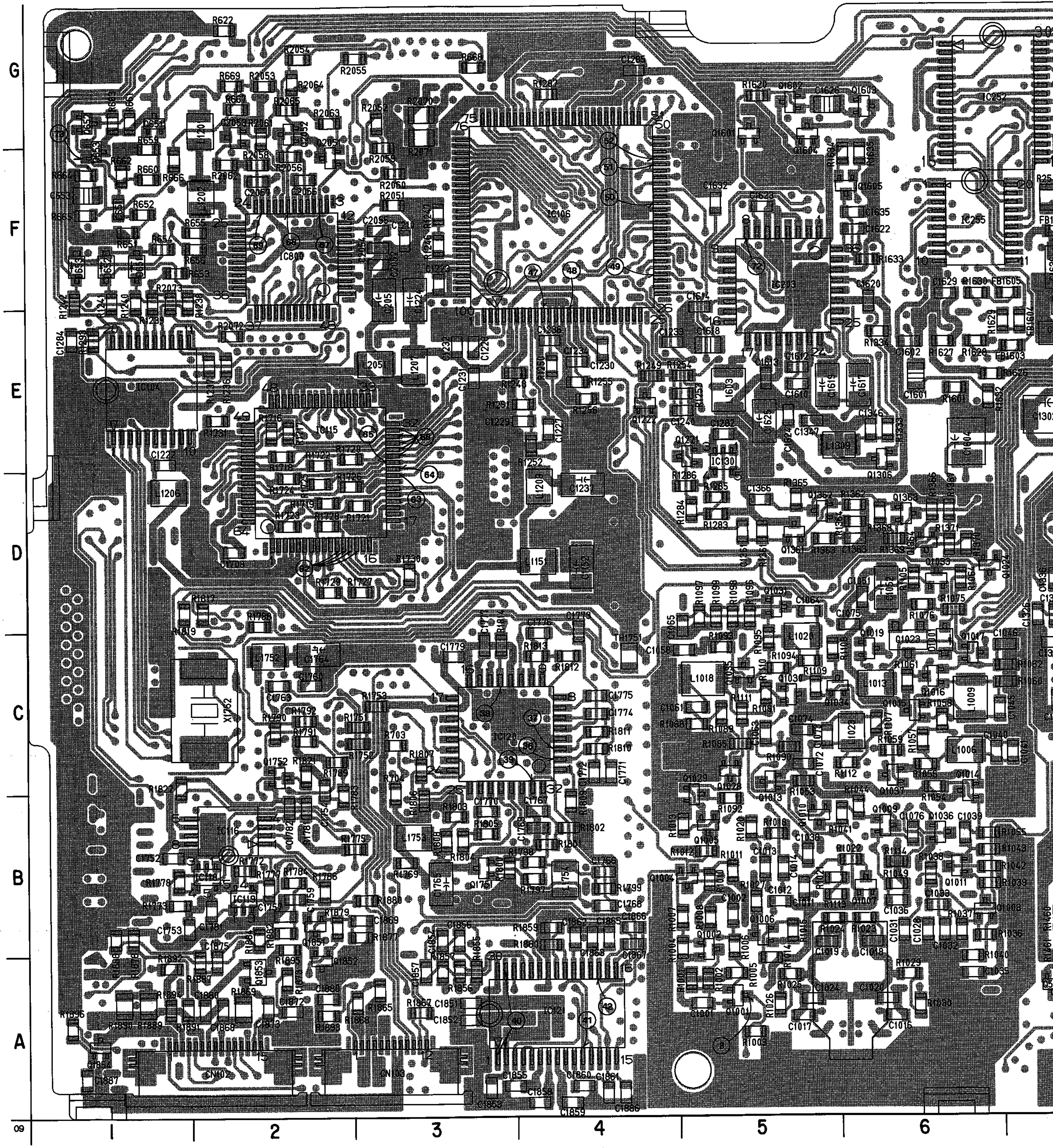
VC-177 BOARD (C


G
F
E
D
C
B
A
09
1
R652
R660
R666
R651
R654
R656
R2073
R1239
C1284
IC104
C1222
C1206
R1819
R1822
C1752
R1778
R1773
C1753
R1836
R1830
R1889
C1887

VC-177 (CAMERA, REC/PB HEAD AMP, VIDEO PROCESS, VIDEO IN/OUT, Y/C PROCESS, SERVO/SYSTEM CONTROL, AUDIO)

— Ref No. VC-177 BOARD: 10,000 series —

VC-177 BOARD (COMPONENT SIDE)


G
F
E
D
C
B
A
1
2
3
4
5
6
09
IC800
IC106
IC203
IC255
IC252
IC1400
IC1301
IC1201
IC1751
IC1851
IC116
IC118
IC119
X1752
CN102
CN103
L1018
L1599
R622
R669
R2053
R2054
R2055
R2063
R2064
R2065
R1282
C1285
R1620
Q1602
C1626
Q1603
Q1601
Q1604
Q1605
Q1606
C1635
C1622
R1633
C1620
C1629
R1630
FB1605
C1623
C1632
C1614
R1618
R1034
C1602
R1627
R1628
FB1603
C1601
R1601
C1346
C1347
Q1306
R1365
C1366
Q1362
R1362
Q1363
R1283
R1284
R1286
R1285
Q1361
C1075
R1076
R1075
C1064
Q1031
Q1019
Q1023
Q1017
C1046
C1066
R1094
R1109
R1111
R1031
R1061
R1016
R1058
C1074
C1076
Q1036
C1039
Q1011
Q1008
C1036
R1037
R1036
R1040
C1035
C1020
C1024
C1017
C1016
R1003
Q1004
C1001
R1026
Q1002
Q1006
R1024
R1023
C1019
C1018
R1029
R1030
C1031
C1028
C1032
C1775
C1774
R1811
R1810
C1771
C1779
R1813
R1812
C1776
C1778
TH1751
C1758
R1759
R1753
C1760
R1792
R1790
R1791
R1751
R1703
R1807
Q1752
R1821
R1822
R1775
R1805
R1803
R1804
C1708
C1710
R1802
R1801
R1799
C1768
R1797
R1796
Q1751
R1769
C1869
R1880
R1879
R1878
R1773
R1777
R1778
R1779
C1753
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Q1851
Q1852
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R1856
R1867
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C1852
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C1859
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R1865
R1866
R1894
R1891
R1889
R1890
R1887
R1893
R1712
R1716
Q1715
R1722
R1720
R1718
R1725
R1724
R1719
R1723
R1728
R1721
R1729
R1727
R1730
C1703
R1817
R1819
R1786
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C1223
C1224
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C1237
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C1236
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R1232
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R1256
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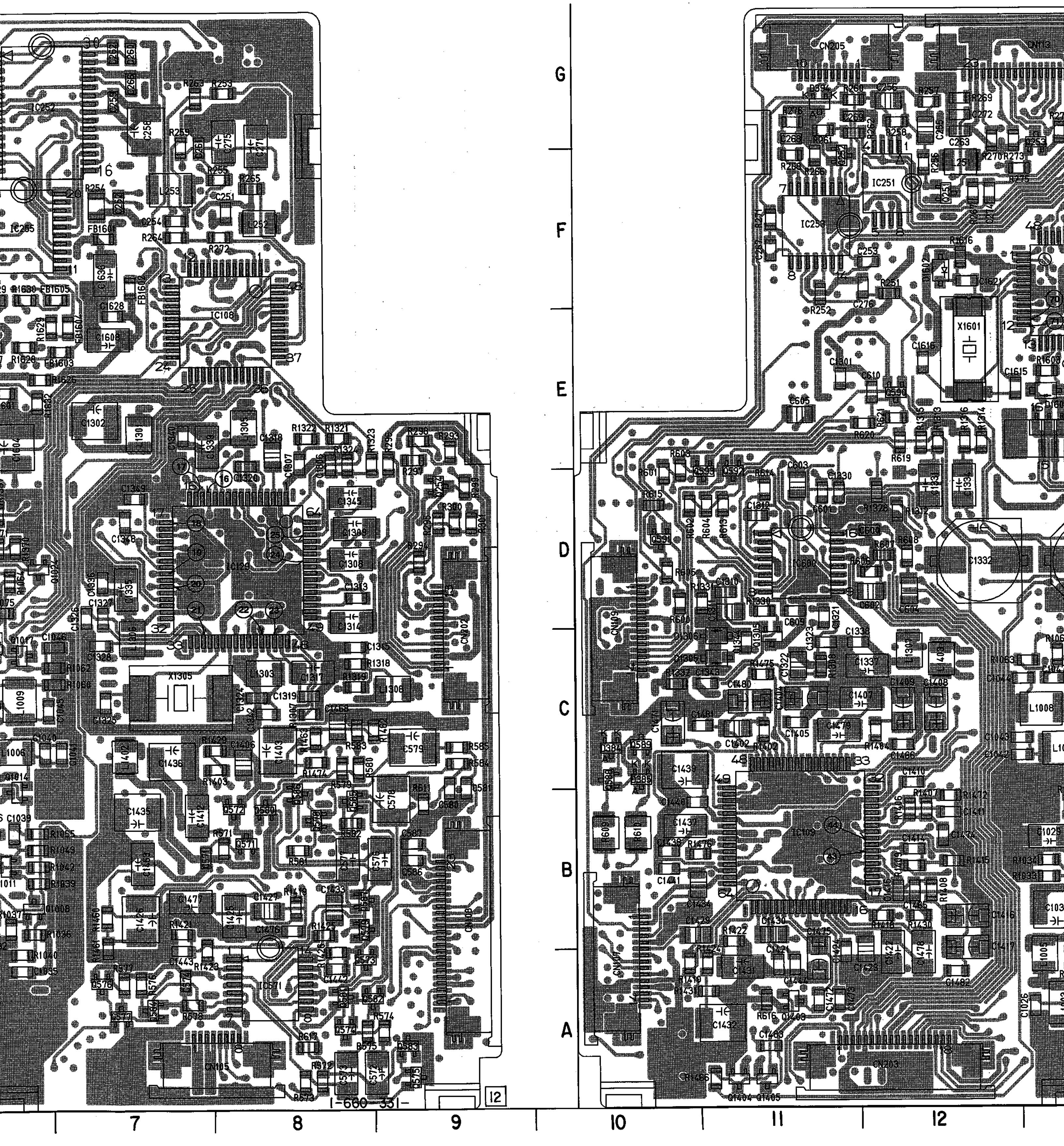
C1284
C1202
R652
R653
R654
R655
R656
R658
R659
R660
R662
R664
R665
C654
R657
R651
R2056
R2058
R2059
R2060
R2061
R2062
R2070
R2072
R2073
C2051
C2055
C2059
R1239
R1240
R1241
R2051
R1201
C2052
R2052
R669
R668
R1633

4-14

Y/C PROCESS, SERVO/SYSTEM CONTROL, AUDIO

ROL, AUDIO) PRINTED WIRING BOARD

VC-177 BOARD (CONDUCTOR SIDE)


G
F
E
D
C
B
A
7
8
9
10
11
12
IC252
IC265
IC108
IC120
IC571
X1305
CN105
1-660-331-
12
CN205
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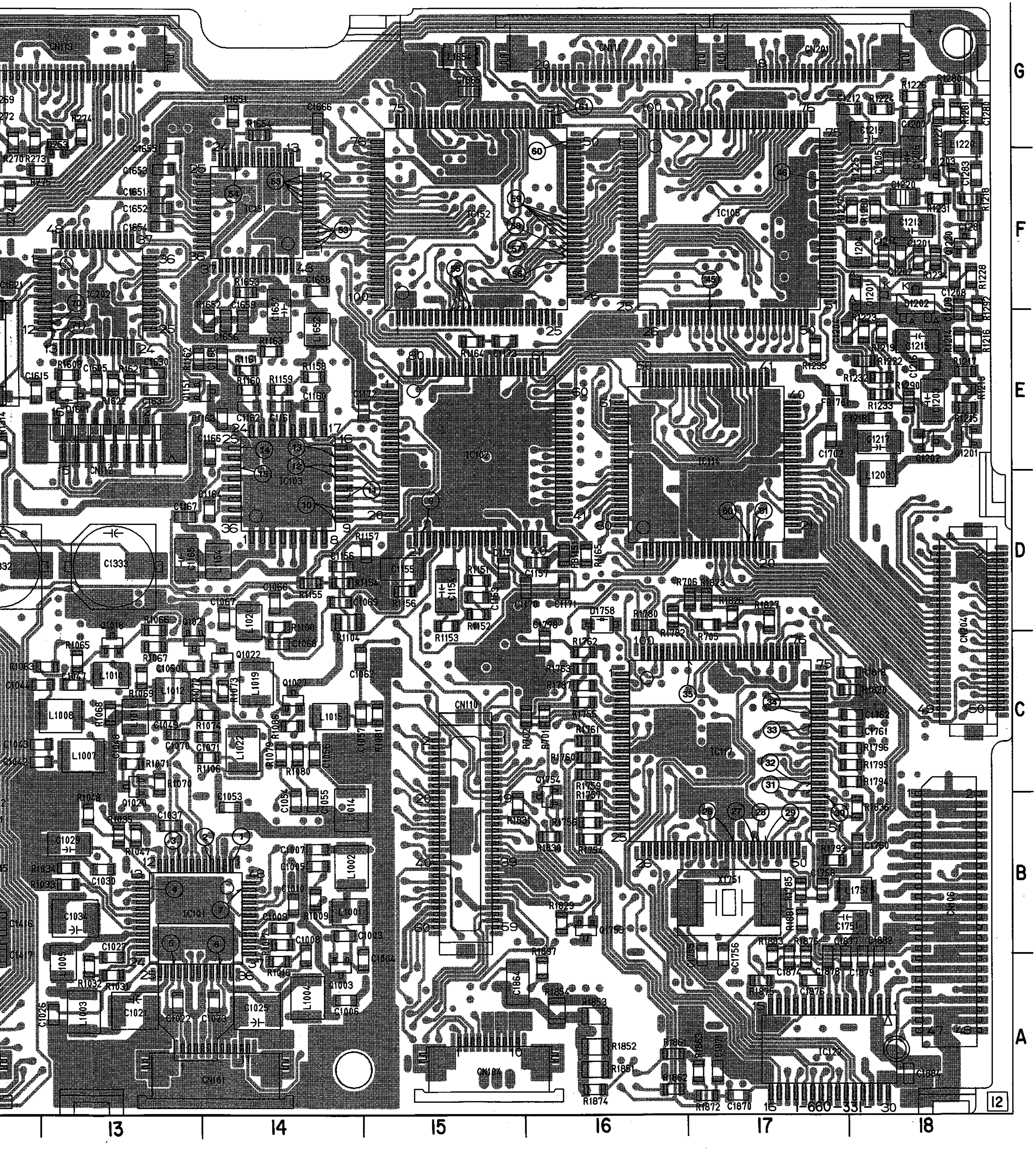
IC256
X1601
C1332
IC109
CN109
CN107
CN203
L1008



G
F
E
D
C
B
A
13
14
15
16
17
18
12
CN113
CN111
CN201
IC161
IC152
IC105
IC202
IC103
IC102
IC174
IC171
IC101
IC121
CN112
CN110
CN101
CN104
CN204
CN106
C1333
X1751
D1758
D1202
L1654
L1008
L1007
L1019
L1015
L1021
L1002
L1004
L1003
L1001
L1201
L1206
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Q1029
Q1754
Q1753
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R1653
R1652
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C1161
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C1164
C1167
R1157
C1156
C1155
R1154
R1156
C1157
R1151
R1152
R1153
C1171
R1164
R1172
R1235
R1233
R1232
R1222
R1223
R1219
R1231
C1212
R1224
R1226
R1280
C1220
C1208
C1217
C1202
R1201
R1216
R1218
R1228
C1283
R706
R1823
R1826
R1827
R1780
R1782
R705
R1762
R1753
R1755
R1761
R1760
R1759
R1757
R1756
R1754
R1830
R1831
R1829
C1759
R1897
C1864
R1854
R1853
R1852
R1851
R1874
R1872
C1870
R1861
R1862
R1863
R1876
C1874
C1878
C1879
C1876
R1875
C1877
C1882
C1756
C1887
R1818
R1820
C1762
C1761
R1796
R1795
R1794
R1836
R1793
C1760
C1758
R1785
C1702
R1065
R1066
R1067
C1050
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L1012
R1073
Q1027
R1059
C1049
R1074
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C1071
R1071
R1076
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R1100
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R1031
C1037
R1035
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R1622
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R1269
R272
R274
R263
R270
R273
R275
C1416
C1417
C1043
C1042
R1044

VC-177 BOARD

C251	F-8
C252	F-7
C253	F-12
C254	F-7
C255	G-12
C256	G-12
C258	G-7
C259	G-7
C260	G-7
C261	G-7
C262	G-7
C263	G-12
C266	G-7
C267	F-11
C268	G-11
C269	G-12
C271	G-8
C274	F-12
C276	F-12
C574	A-7
C576	B-8
C577	B-8
C609	D-11
C610	E-12
C1002	B-5
C1003	B-14
C1004	A-15
C1005	B-14
C1006	A-14
C1007	B-14
C1008	A-14
C1009	B-14
C1010	B-14
C1011	B-5
C1012	B-5
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C1019	B-5
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C1021	A-13
C1022	A-13
C1023	A-14
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C1203	E-18
C1204	E-17
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C1206	F-18
C1207	G-18
C1208	F-18
C1209	E-18
C1212	G-18
C1213	F-18
C1215	E-18
C1216	E-18
C1217	E-18
C1218	E-18
C1219	G-18
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C1223	F-3
C1224	F-3
C1227	E-4
C1228	E-3
C1229	E-4
C1230	E-4
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C1233	E-4
C1234	E-4
C1236	E-4
C1237	D-4
C1240	E-5
C1280	G-18
C1282	E-5
C1283	F-18
C1284	E-1
C1285	G-4
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C1302	E-7
C1306	E-8
C1307	E-8
C1308	D-8
C1309	D-8
C1310	D-11
C1311	D-11
C1312	D-11
C1313	D-8
C1314	D-8
C1315	C-8
C1317	C-8
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C1326	D-7
C1327	D-7
C1328	C-7
C1330	D-11
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C1333	D-13
C1334	D-12
C1335	D-7
C1336	D-7
C1337	C-12
C1338	C-2
C1339	E-7
C1340	E-7
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C1343	C-2
C1344	C-2
C1345	D-8
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C1366	D-5
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C1403	C-8
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C1405	C-2
C1406	C-8
C1407	C-12
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C1411	B-12
C1412	B-7
C1414	B-12
C1415	B-12
C1416	B-12
C1417	A-12
C1421	A-11
C1422	A-12
C1423	A-12
C1424	A-11
C1425	B-8
C1426	B-7
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C1430	B-11
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C1605	E-13
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C1617	E-6
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C1619	E-5
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C1622	F-6
C1623	F-5
C1624	E-5
C1625	E-5
C1626	G-5
C1628	E-7
C1629	F-6
C1630	E-13
C1631	E-13
C1632	F-5
C1635	F-6
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C1652	F-13
C1653	F-13
C1654	F-13
C1655	F-13
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C1657	E-14
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C1659	E-14
C1665	G-15
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C1703	D-2
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C1756	A-17
C1757	B-2
C1758	B-17
C1760	C-2
C1761	C-18
C1762	C-18
C1763	C-2
C1764	C-2
C1765	B-3
C1767	B-4
C1768	B-4
C1769	B-4
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C1771	C-4
C1772	C-4
C1773	C-4
C1774	C-4
C1775	C-4
C1776	C-4
C1777	C-3
C1779	C-3
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C1782	B-2
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C1858	A-4
C1859	A-4
C1860	A-4
C1861	A-4
C1862	B-4
C1863	B-4
C1864	A-15
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C1868	A-2
C1869	B-3
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C1871	A-17
C1872	A-2
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CN105	A-7
CN106	B-18
CN107	A-10
CN108	B-9
CN109	D-10
CN110	C-15
CN111	G-16
CN112	E-13
CN113	G-13
CN201	G-17
CN202	C-9
CN205	G-11
D384	C-1
D385	C-1
D394	G-11
D1201	F-18
D1202	F-18
D1305	C-2
D1306	C-2
D1601	E-13
D1602	F-12
D1758	D-16
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FB1601	F-7
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IC117	C-17
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IC119	B-2
IC120	C-3
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IC122	A-17
IC129	D-8
IC130	E-5
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IC152	F-15
IC202	F-13
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IC253	F-11
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L1012	C-13
L1013	C-6
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L1015	C-14
L1018	C-5
L1019	C-14
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L1022	C-14
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L1752	C-2
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L1754	B-4
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Q252	F-11
Q253	G-13
Q254	D-9
Q572	B-8
Q578	B-8
Q579	B-8
Q580	B-8
Q585	B-8
Q586	B-8
Q587	B-8
Q590	E-12
Q591	D-10
Q592	D-11
Q593	D-11
Q1001	A-5
Q1002	B-5
Q1003	A-14
Q1004	B-5
Q1005	B-5
Q1006	B-5
Q1009	B-6
Q1010	B-5
Q1013	C-5
Q1014	C-6
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Q1220	F-18
Q1221	E-5
Q1222	E-4
Q1305	C-2
Q1306	E-6
Q1361	D-5
Q1362	D-5
Q1363	D-6
Q1364	D-6
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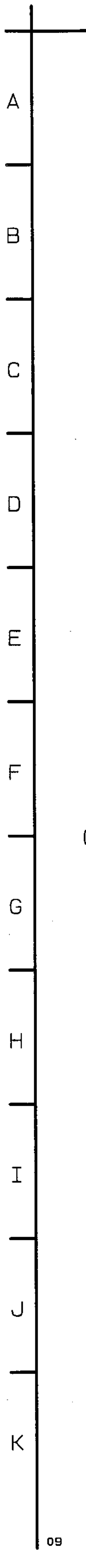
Q1404	A-11
Q1405	A-11
Q1601	G-5
Q1602	G-5
Q1603	G-6
Q1604	G-5
Q1751	B-3
Q1851	B-2
Q1852	A-2
Q1853	A-2
Q1854	A-1
R251	F-12
R252	F-11
R253	G-8
R254	F-7
R255	F-8
R256	F-12
R257	G-12
R258	G-12
R259	G-7
R260	G-12
R261	G-11
R262	G-12
R263	G-7
R264	F-7
R265	F-8
R266	F-11
R267	F-12
R268	F-11
R269	G-12
R270	G-12
R271	F-11
R272	F-8
R273	G-12
R274	G-13
R275	F-13
R276	G-11
R294	D-9
R295	D-9
R298	E-9
R300	D-9
R579	C-8
R580	C-8
R581	B-8
R582	B-8
R583	C-8
R600	D-10
R601	D-10
R602	D-10
R603	D-10
R604	D-11
R605	D-10
R609	B-10
R610	B-10
R611	B-9
R613	D-11
R614	D-11
R615	D-10
R616	A-11
R617	A-8
R619	E-12
R620	E-12
R621	E-12
R622	G-2
R655	F-2
R656	F-2
R702	C-16
R703	C-3
R705	D-16
R706	D-16
R1001	A-5
R1002	A-5
R1003	A-5
R1004	B-5
R1005	A-5
R1006	B-5
R1007	B-5
R1008	B-5
R1009	B-14
R1010	B-5
R1011	B-5
R1012	B-5
R1013	B-5
R1014	A-5
R1016	A-14
R1017	B-14
R1018	B-5
R1020	B-5
R1021	B-5
R1023	B-6
R1024	B-5
R1025	A-5
R1026	A-5
R1027	B-5
R1029	A-6
R1030	A-6
R1031	A-13
R1032	A-13
R1033	B-13
R1034	B-13
R1035	B-13
R1038	B-6
R1041	B-5
R1044	B-6
R1049	B-6
R1053	C-5
R1054	C-6
R1055	B-6
R1056	C-6
R1057	C-6
R1058	C-6
R1060	C-7
R1061	C-6
R1062	C-7
R1063	C-13
R1064	D-6
R1065	C-13
R1066	D-13
R1067	C-13
R1068	C-13
R1069	C-13
R1070	C-13
R1072	C-14
R1073	C-14
R1074	C-14
R1075	D-6
R1076	D-6
R1079	C-14
R1080	C-14
R1081	C-15
R1085	C-14
R1086	
R1088	C-5
R1090	C-5
R1091	C-5
R1093	C-5
R1094	C-5
R1095	C-5
R1096	D-5
R1097	D-5
R1098	D-5
R1099	D-5
R1100	D-14
R1104	D-14
R1105	D-6
R1106	C-14
R1108	C-5
R1109	C-5
R1110	C-5
R1111	C-5
R1112	C-5
R1113	B-5
R1114	B-6
R1151	D-15
R1152	D-15
R1153	D-15
R1154	D-14
R1155	D-14
R1156	D-15
R1157	D-15
R1159	E-14
R1160	E-14
R1162	E-14
R1163	E-14
R1164	E-15
R1165	D-16
R1213	E-18
R1215	E-18
R1216	E-18
R1217	E-18
R1218	F-18
R1219	E-18
R1221	G-18
R1222	E-18
R1223	E-18
R1224	G-18
R1225	F-18
R1226	G-18
R1227	F-18
R1228	F-18
R1230	F-18
R1231	F-18
R1232	E-18
R1233	E-18
R1234	F-18
R1235	E-17
R1236	E-2
R1237	E-2
R1238	F-1
R1239	F-1
R1240	F-1
R1241	F-1
R1242	F-1
R1246	F-3
R1247	F-3
R1248	E-3
R1249	E-4
R1250	E-4
R1251	E-4
R1252	E-4
R1253	E-5
R1254	E-5
R1255	E-4
R1256	E-4
R1280	G-18
R1281	G-18
R1283	D-5
R1284	D-5
R1285	D-5
R1286	D-5
R1290	E-18
R1292	E-18
R1293	E-1
R1307	C-8
R1308	C-2
R1312	D-12
R1313	E-12
R1314	E-12
R1315	E-12
R1316	E-12
R1318	C-8
R1319	C-8
R1321	E-8
R1322	E-8
R1323	E-8
R1324	E-8
R1330	D-11
R1331	D-11
R1333	E-6
R1334	E-6
R1361	D-5
R1362	D-6
R1363	D-5
R1364	D-6
R1365	D-5
R1366	D-6
R1367	D-6
R1368	D-6
R1370	D-6
R1371	D-6
R1402	C-2
R1403	C-7
R1404	C-12
R1406	B-12
R1407	B-12
R1408	B-12
R1409	B-12
R1410	A-10
R1415	B-12
R1418	B-12
R1419	B-8
R1421	B-7
R1422	B-11
R1423	B-7
R1424	A-11
R1425	B-8
R1426	A-8
R1429	C-7
R1430	B-12
R1431	A-11
R1460	B-7
R1463	C-8
R1466	A-11
R1472	B-12
R1476	B-11
R1601	E-6
R1603	E-13
R1616	F-12
R1620	G-5
R1621	E-13
R1622	E-13
R1626	E-6
R1628	E-6
R1629	E-6
R1630	F-6
R1632	E-6
R1633	F-6
R1651	G-14
R1652	E-14
R1653	F-14
R1751	C-3
R1752	C-3
R1753	C-3
R1759	C-16
R1760	C-16
R1761	C-16
R1762	C-16
R1763	C-16
R1772	B-2
R1773	B-1
R1775	B-2
R1780	D-16
R1781	B-2
R1782	D-16
R1783	C-2
R1784	B-2
R1785	B-17
R1786	B-2
R1787	C-16
R1789	C-2
R1790	C-2
R1791	C-2
R1792	C-2
R1793	B-17
R1794	C-18
R1795	C-18
R1796	C-18
R1798	B-4
R1801	B-4
R1803	B-3
R1804	B-3
R1805	B-3
R1806	B-3
R1807	C-3
R1808	B-3
R1809	B-4
R1810	C-4
R1811	C-4
R1812	C-4
R1813	C-4
R1814	C-3
R1817	D-2
R1820	C-18
R1821	C-2
R1822	C-1
R1823	D-16
R1826	D-16
R1827	D-16
R1836	B-18
R1851	A-16
R1852	A-16
R1853	A-16
R1855	A-3
R1856	A-3
R1857	A-3
R1859	B-4
R1860	B-4
R1861	A-16
R1862	A-16
R1863	A-17
R1865	A-3
R1867	A-3
R1868	A-3
R1869	A-2
R1872	A-17
R1873	A-2
R1874	A-16
R1875	A-17
R1876	A-17
R1877	B-3
R1878	B-1
R1880	B-3
R1881	B-17
R1882	B-2
R1883	A-17
R1884	B-2
R1887	A-2
R1888	B-1
R1889	A-1
R1890	A-1
R1891	A-1
R1892	A-1
R1893	A-2
R1894	A-1
R1895	B-2
R1896	A-1
R1897	A-16
TH1751	C-4
X1305	C-7
X1601	E-12
X1751	B-17
X1752	C-2

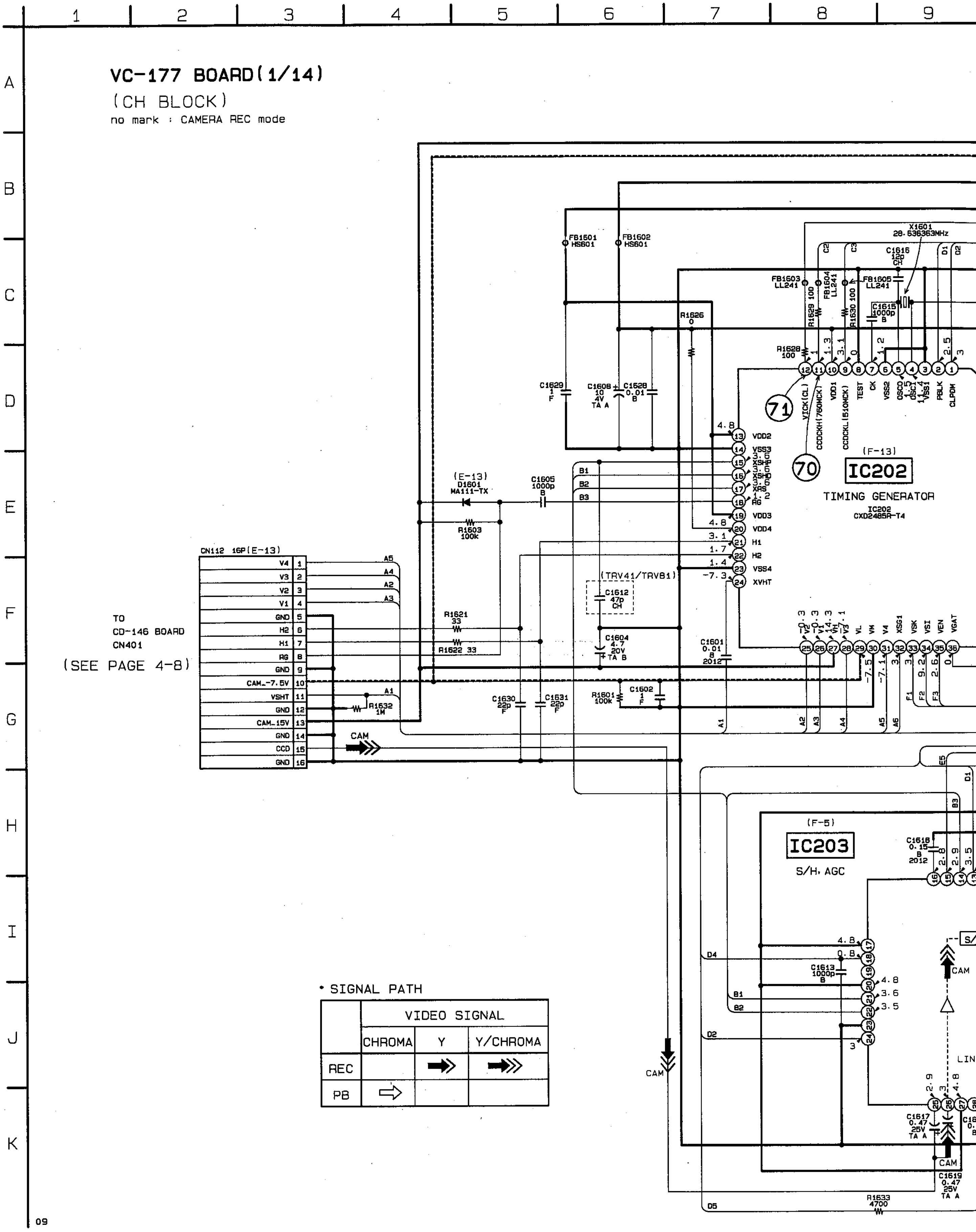
VC-177

— Ref No.



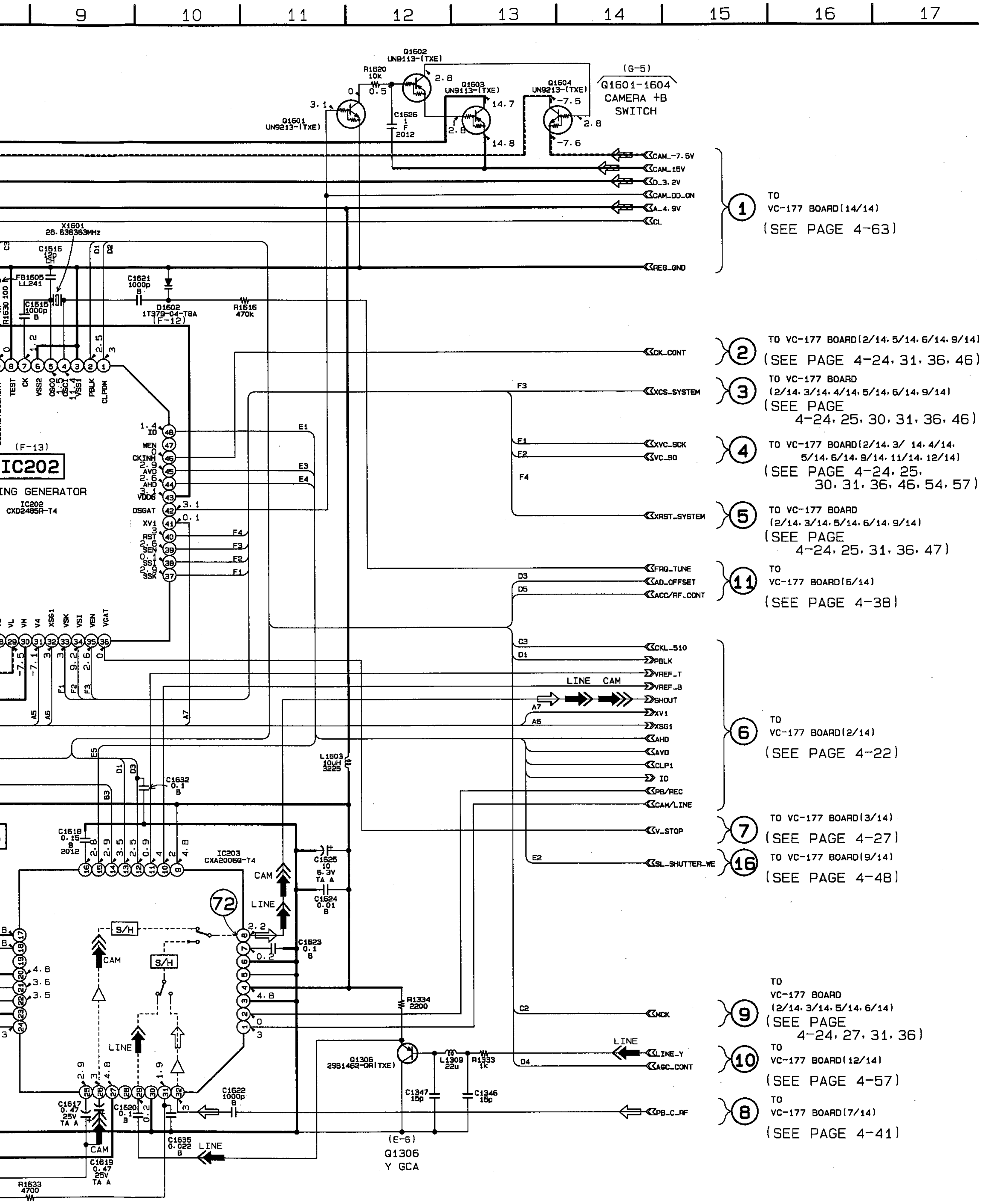
VC-177 (CAMERA (1)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
VC-177 BOARD(1/14)
(CH BLOCK)
no mark : CAMERA REC mode
X1601
28.636363MHz
C1616
12p
CH
FB1601
HS601
FB1602
HS601
FB1603
LL241
FB1604
LL241
FB1605
LL241
C1615
1000p
B
R1629 100
R1630 100
R1626
0
R1628
100
C1629
1
F
C1608
10
4V
TA A
C1528
0.01
B
VDD2
VSS3
XSHP
XSHD
XRS
RG
VDD3
VDD4
H1
H2
VSS4
XVHT
VCK(CL)
CCDCKH(760MCK)
VDD1
CCDCKL(510MCK)
TEST
CK
VSS2
OSCO
OSCI
VSS1
PBLK
CLPDM
71
70
(F-13)
IC202
TIMING GENERATOR
IC202
CXD2465R-T4
V2
V1
VH
V3
VL
VM
V4
XSG1
VSK
VSI
VEN
VGAT
(E-13)
D1601
MA111-TX
C1605
1000p
B
R1603
100k
B1
B2
B3
(TRV41/TRV81)
C1612
47p
CH
C1604
4.7
20V
TA B
C1601
0.01
B
2012
R1621
33
R1622 33
CN112 16P(E-13)
V4
V3
V2
V1
GND
H2
H1
RG
GND
CAM_-7.5V
VSHT
GND
CAM_15V
GND
CCD
GND
A5
A4
A2
A3
A1
R1632
1M
CAM
TO
CD-146 BOARD
CN401
(SEE PAGE 4-8)
C1630
22p
F
C1631
22p
F
R1601
100k
C1602
1
F
A1
A2
A3
A4
A5
A6
F1
F2
F3
E5
D1
B3
C1
C2
C3
D1
D2
(F-5)
IC203
S/H, AGC
C1618
0.15
B
2012
D4
C1613
1000p
B
B1
B2
D2
D5
CAM
C1617
0.47
25V
TA A
C1619
0.47
25V
TA A
CAM
R1633
4700
LIN
09

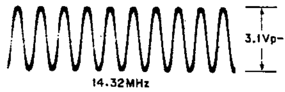
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡》	➡》》
PB	⇨		

9
10
11
12
13
14
15
16
17
Q1602
UN9113-(TXE)
R1620
10k
0.5
2.8
Q1603
UN9113-(TXE)
14.7
Q1604
UN9213-(TXE)
-7.5
2.8
-7.6
(G-5)
Q1601-1604
CAMERA +B
SWITCH
Q1601
UN9213-(TXE)
3.1
0
C1626
1
F
2012
2.8
14.8
CAM_-7.5V
CAM_15V
D_3.2V
CAM_DD_ON
A_4.9V
CL
REG_GND
① TO VC-177 BOARD(14/14) (SEE PAGE 4-63)
X1601
28.636363MHz
C1616
12p
CH
FB1605
LL241
C1515
1000p
B
R1630 100
C1621
1000p
B
D1602
1T379-04-T8A
(F-12)
R1616
470k
D1
D2
TEST
CK
VSS2
OSCO
OSCI
VSS1
PBLK
CLPDM
CK_CONT
② TO VC-177 BOARD(2/14,5/14,6/14,9/14) (SEE PAGE 4-24,31,36,46)
F3
XCS_SYSTEM
③ TO VC-177 BOARD (2/14,3/14,4/14,5/14,6/14,9/14) (SEE PAGE 4-24,25,30,31,36,46)
(F-13)
IC202
ING GENERATOR
IC202
CXD2485R-T4
ID
WEN
CKINH
AVD
AHD
VDDS
DSGAT
XV1
RST
SEN
SSI
SSK
E1
E3
E4
3.1
0.1
F4
F3
F2
F1
F1
F2
XVC_SCK
VC_SO
④ TO VC-177 BOARD(2/14,3/14,4/14,5/14,6/14,9/14,11/14,12/14) (SEE PAGE 4-24,25,30,31,36,46,54,57)
F4
XRST_SYSTEM
⑤ TO VC-177 BOARD (2/14,3/14,5/14,6/14,9/14) (SEE PAGE 4-24,25,31,36,47)
FRQ_TUNE
D3
AD_OFFSET
D5
ACC/RF_CONT
⑪ TO VC-177 BOARD(6/14) (SEE PAGE 4-38)
VL
VM
V4
XSG1
VSK
VSI
VEN
VGAT
-7.5
-7.1
C3
CKL_510
D1
PBLK
VREF_T
VREF_B
LINE CAM
SHOUT
A7
XV1
A6
XSG1
AHD
AVD
CLP1
ID
PB/REC
CAM/LINE
⑥ TO VC-177 BOARD(2/14) (SEE PAGE 4-22)
A5
A6
A7
F1
F2
F3
E5
D1
D3
B3
L1603
10uH
3225
C1632
0.1
B
C1618
0.15
B
2012
IC203
CXA2006Q-T4
V_STOP
⑦ TO VC-177 BOARD(3/14) (SEE PAGE 4-27)
E2
SL_SHUTTER_WE
⑯ TO VC-177 BOARD(9/14) (SEE PAGE 4-48)
C1625
10
6.3V
TA A
C1624
0.01
B
CAM
LINE
72
S/H
S/H
CAM
C1623
0.1
B
2.2
0.2
4.8
3.6
3.5
4.8
R1334
2200
C2
MCK
⑨ TO VC-177 BOARD (2/14,3/14,5/14,6/14) (SEE PAGE 4-24,27,31,36)
LINE
Q1306
2SB1462-QR(TXE)
L1309
22u
R1333
1k
LINE
LINE_Y
D4
AGC_CONT
⑩ TO VC-177 BOARD(12/14) (SEE PAGE 4-57)
C1617
0.47
25V
TA A
C1620
0.1
B
C1622
1000p
B
C1347
15p
C1346
15p
PB_C_RF
⑧ TO VC-177 BOARD(7/14) (SEE PAGE 4-41)
CAM
C1619
0.47
25V
TA A
C1635
0.022
B
LINE
(E-6)
Q1306
Y GCA
R1633
4700

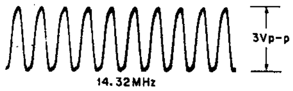
VC-177 BOARD (CH BLOCK)

(70)



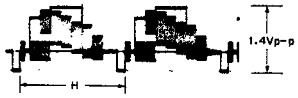
IC202 ⑪ REC/PB

(71)



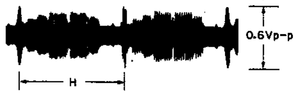
IC202 ⑫ REC/PB

(72)



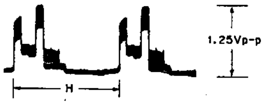
IC203 ⑧ REC

(72)



IC203 ⑧ PB

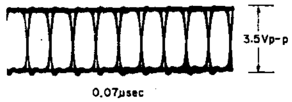
(72)



IC203 ⑧ CAMERA REC

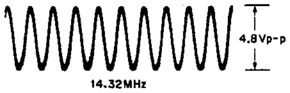
VC-177 BOARD (CA BLOCK)

(53)



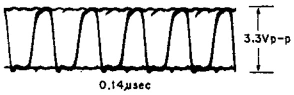
IC151 ①-⑤,⑧-⑫ CAMERA REC

(54)



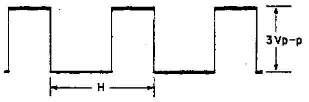
IC151 ㉒ CAMERA REC

(55)



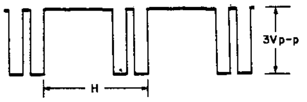
IC152 ⑨—⑫ CAMERA REC

(56)



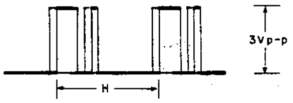
IC152 ㉛ CAMERA REC

(57)



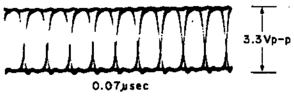
IC152 ㉜ CAMERA REC

(58)



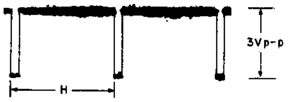
IC152 ㉝ CAMERA REC

(59)



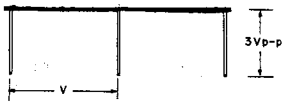
IC152 ㉞—㊳ CAMERA REC

(60)



IC152 ㊿ CAMERA REC

(61)

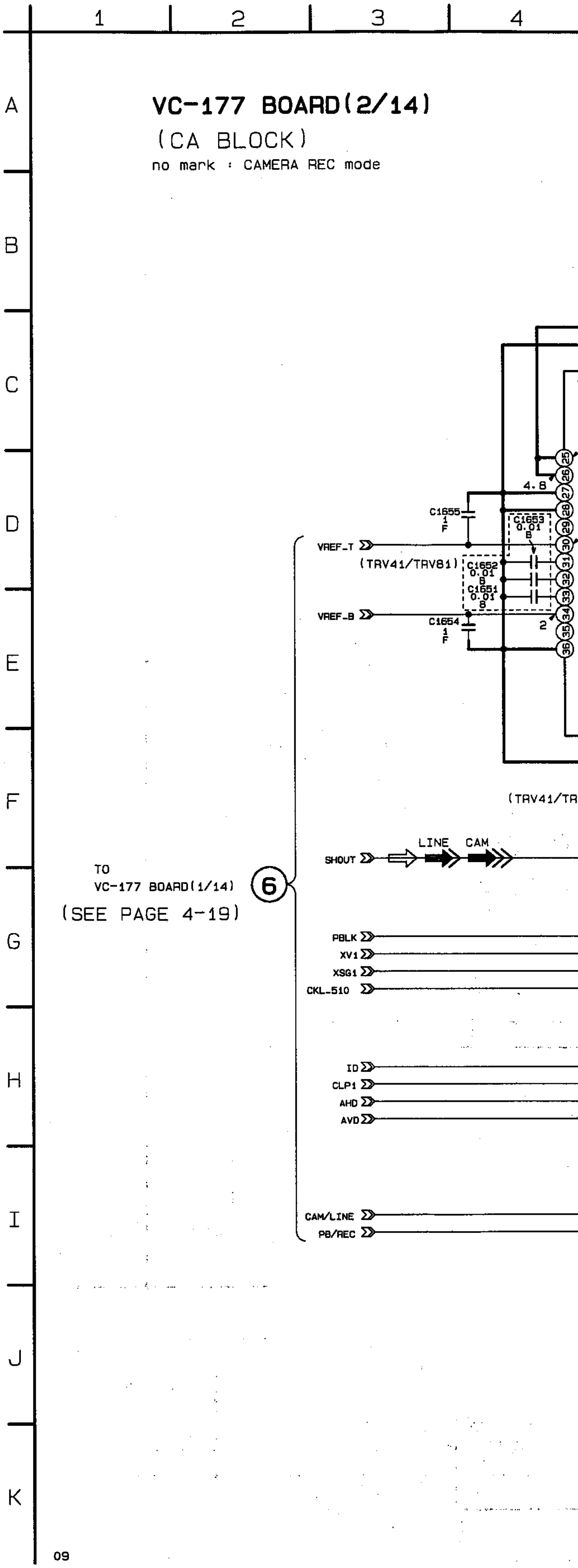


IC152 (51) CAMERA REC

VC-177 (CAMERA (2)) SCHEMATIC DIAGRAM

• Refe

— Ref No. VC-177 BOARD: 10,000 series —


1
2
3
4
A
B
C
D
E
F
G
H
I
J
K
VC-177 BOARD(2/14)
(CA BLOCK)
no mark : CAMERA REC mode
4.8
C1655 1 F
C1653 0.01 B
VREF_T
(TRV41/TRV81)
C1652 0.01 B
C1651 0.01 B
VREF_B
C1654 1 F
2
㉕
㉖
㉗
㉘
㉙
㉚
㉛
㉜
㉝
㉞
㉟
㊱
(TRV41/TR
TO
VC-177 BOARD(1/14)
(SEE PAGE 4-19)
⑥
SHOUT
LINE
CAM
PBLK
XV1
XSG1
CKL_510
ID
CLP1
AHD
AVD
CAM/LINE
PB/REC
09

HEMATIC DIAGRAM • Refer to page 4–13 for Printed Wiring Board.

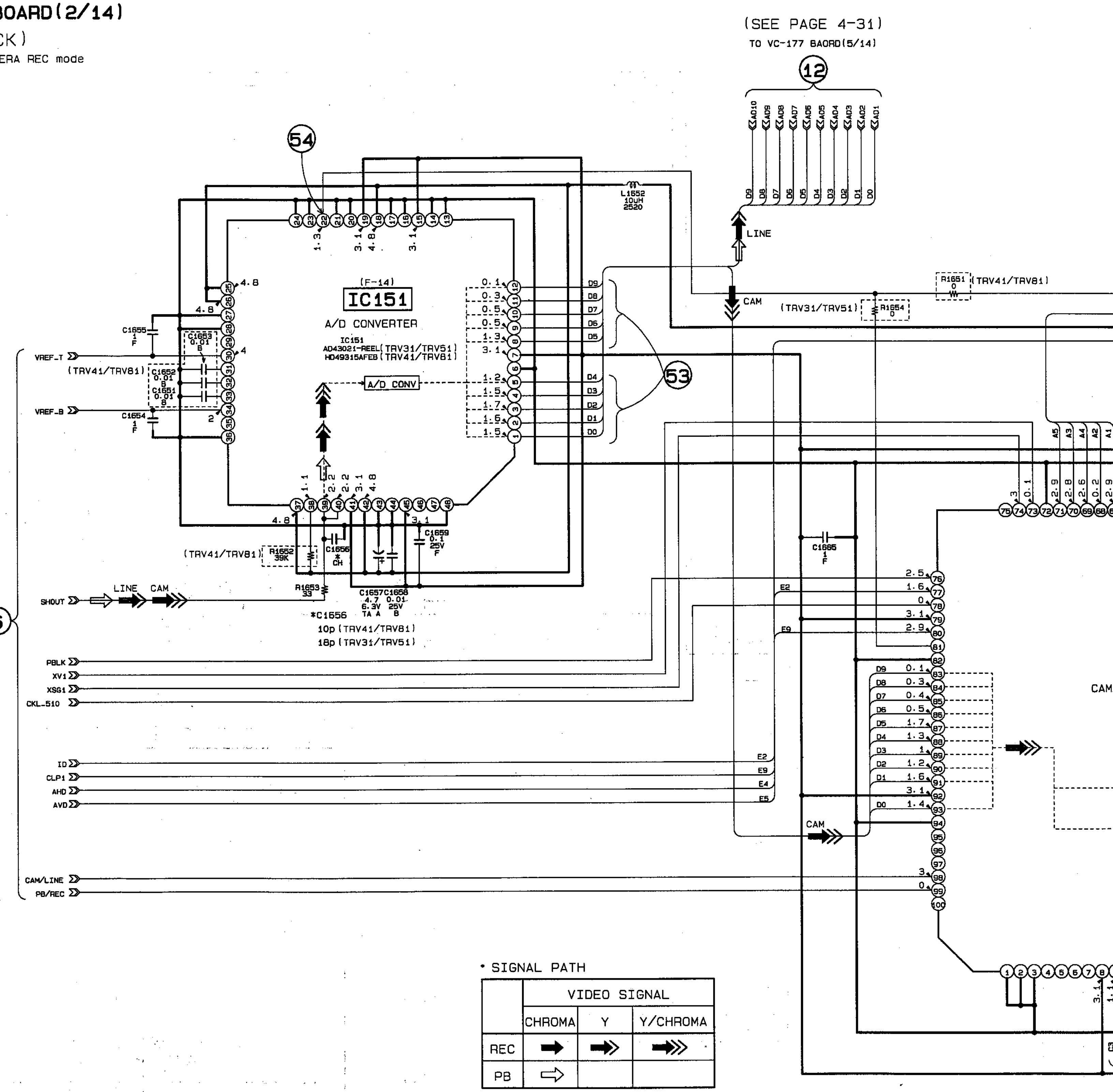
0 series —

| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

OARD(2/14)

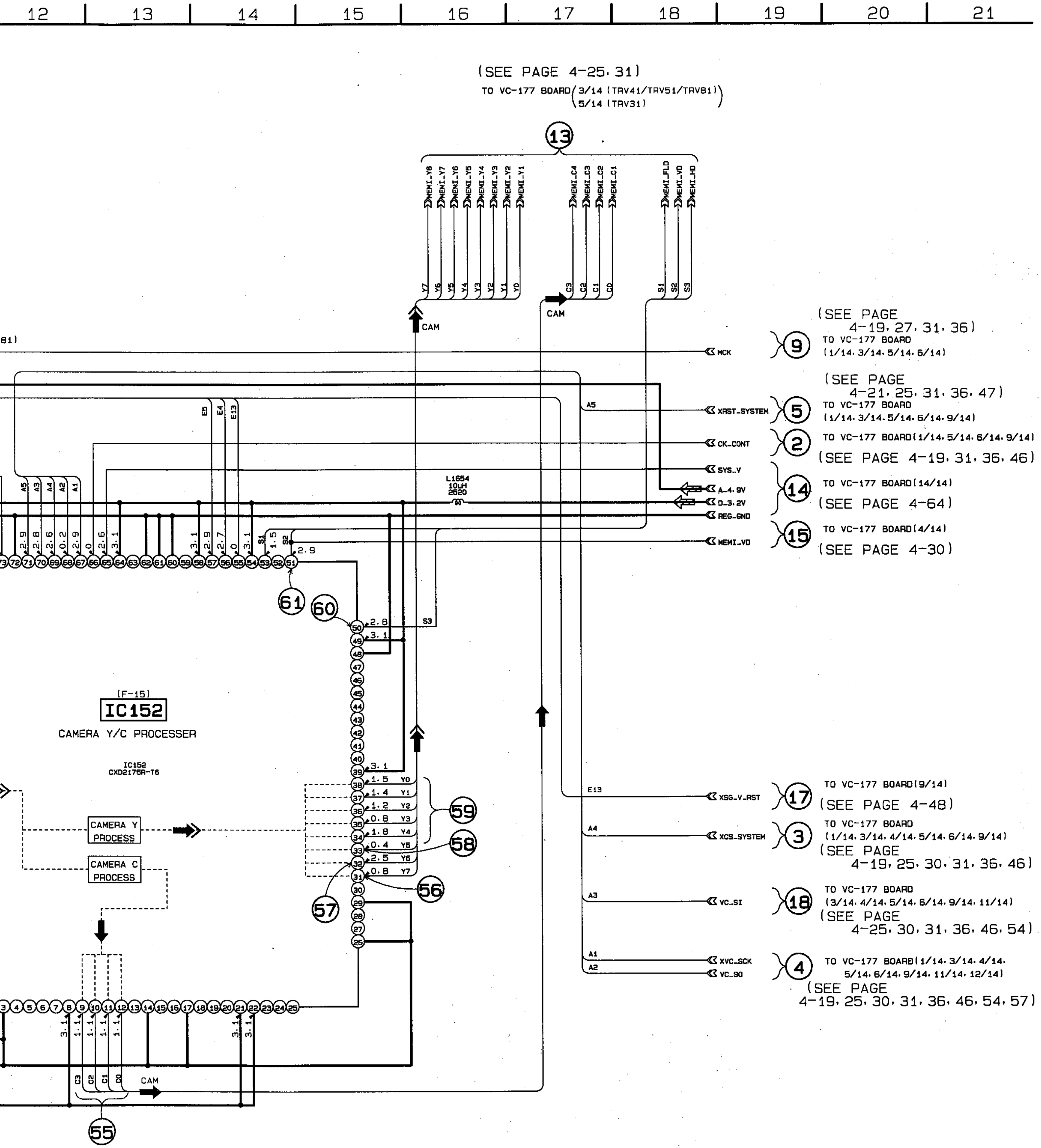
CK)

ERA REC mode


(SEE PAGE 4–31)
TO VC-177 BAORD(5/14)
⑫
AD10 AD9 AD8 AD7 AD6 AD5 AD4 AD3 AD2 AD1
D9 D8 D7 D6 D5 D4 D3 D2 D1 D0
LINE
CAM
54
53
L1652 10uH 2520
(F-14)
IC151
A/D CONVERTER
IC151
AD43021-REEL(TRV31/TRV51)
HD49315AFEB(TRV41/TRV81)
A/D CONV
R1651 0 (TRV41/TRV81)
(TRV31/TRV51) R1654 0
C1655 1 F
C1653 0.01 B
C1652 0.01 B
C1651 0.01 B
C1654 1 F
(TRV41/TRV81)
VREF_T
VREF_B
SHOUT
LINE CAM
(TRV41/TRV81) R1652 39K
R1653 33
C1656 * CH
C1657 4.7 6.3V TA A
C1658 0.01 25V B
C1659 0.1 25V F
*C1656
10p(TRV41/TRV81)
18p(TRV31/TRV51)
C1665 1 F
PBLK
XV1
XSG1
CKL_510
ID
CLP1
AHD
AVD
CAM/LINE
PB/REC
E2 E9 E4 E5
A5 A3 A4 A2 A1
CAM

• SIGNAL PATH

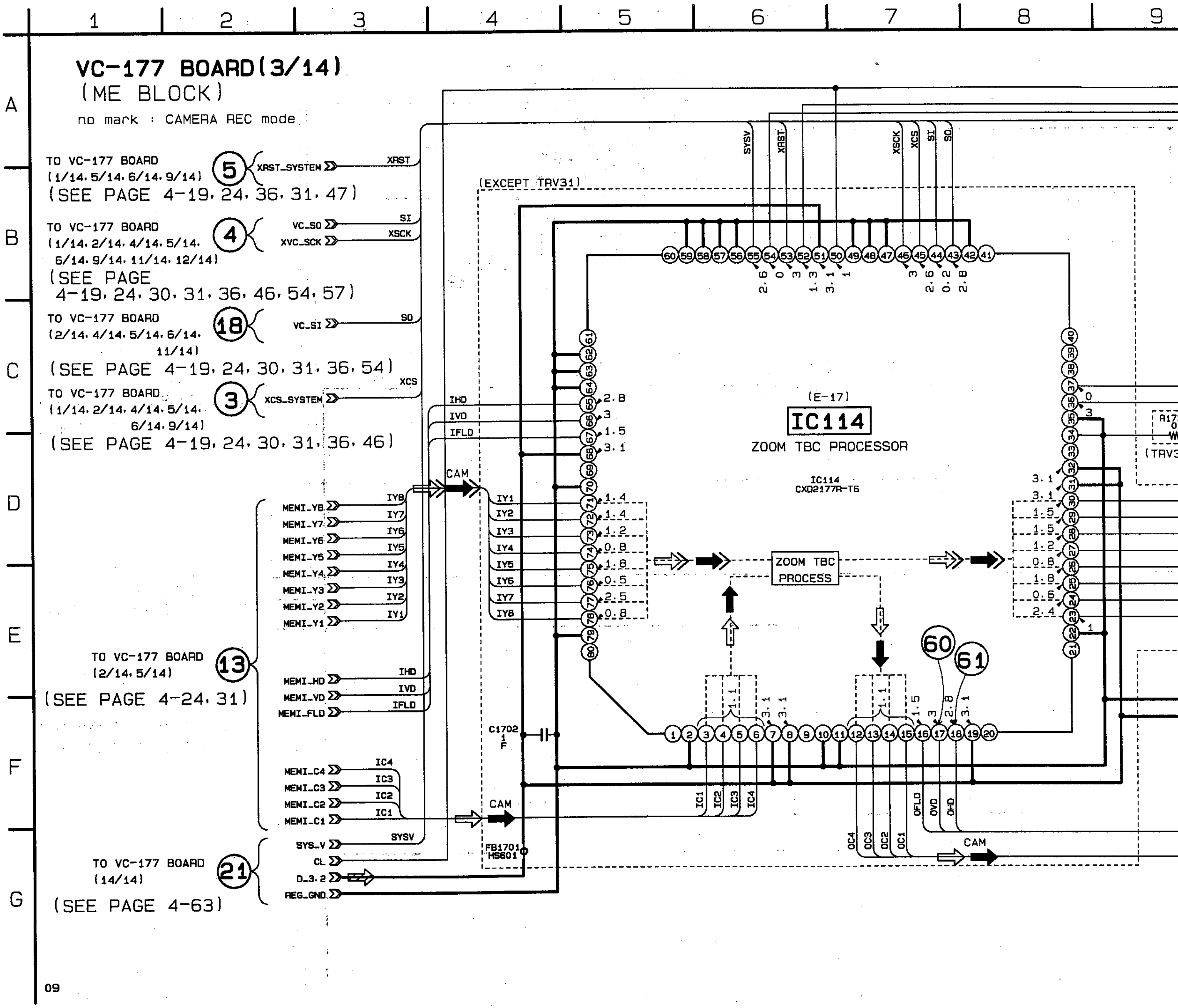
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡»	➡»»
PB	⇨		

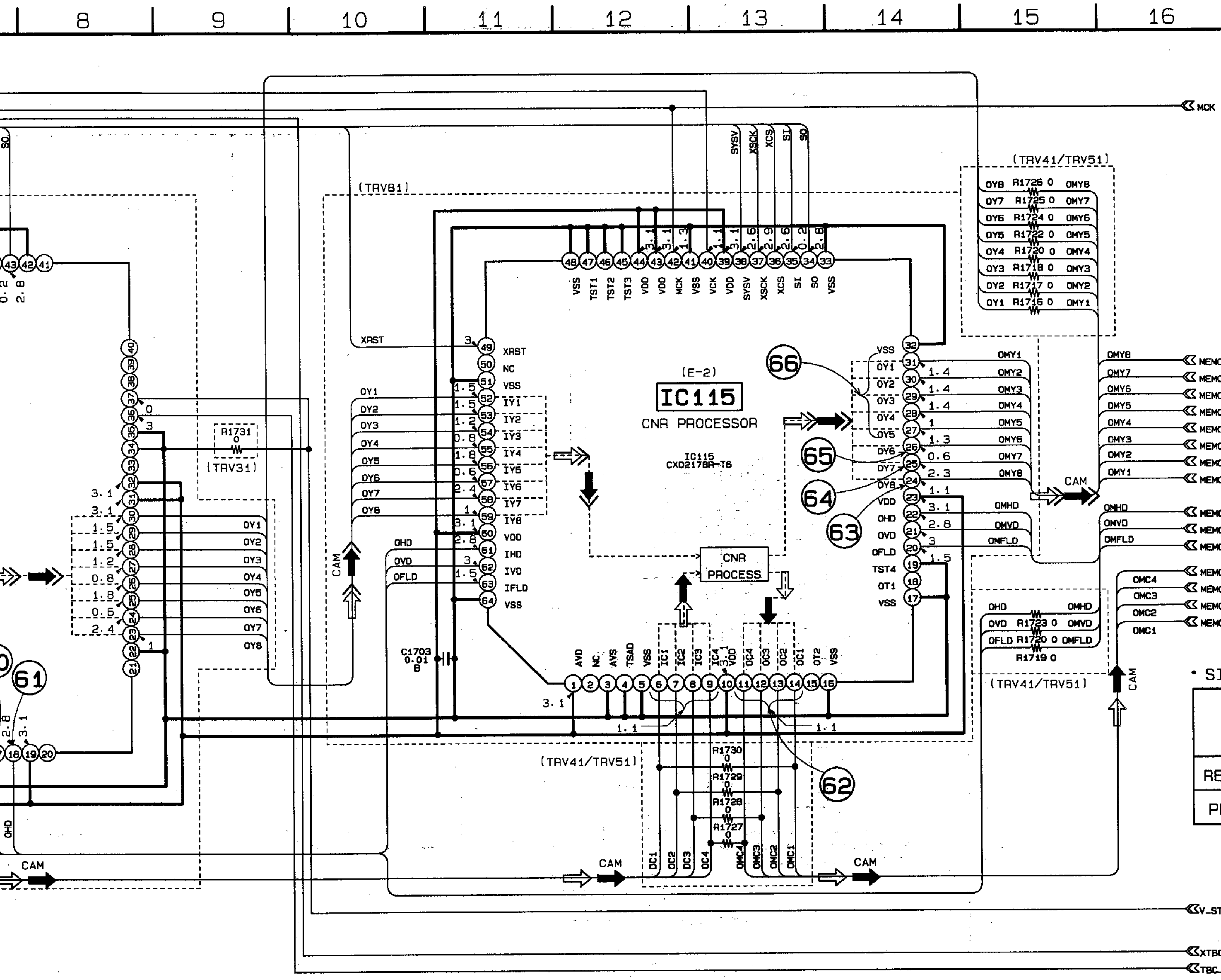

12
13
14
15
16
17
18
19
20
21
(SEE PAGE 4-25, 31)
TO VC-177 BOARD (3/14 (TRV41/TRV51/TRV81)
5/14 (TRV31))
13
MEMI_Y8
MEMI_Y7
MEMI_Y6
MEMI_Y5
MEMI_Y4
MEMI_Y3
MEMI_Y2
MEMI_Y1
MEMI_C4
MEMI_C3
MEMI_C2
MEMI_C1
MEMI_FLD
MEMI_VD
MEMI_HD
Y7
Y6
Y5
Y4
Y3
Y2
Y1
Y0
C3
C2
C1
C0
S1
S2
S3
CAM
CAM
81)
MCK
9
(SEE PAGE 4-19, 27, 31, 36)
TO VC-177 BOARD (1/14, 3/14, 5/14, 6/14)
XRST_SYSTEM
5
(SEE PAGE 4-21, 25, 31, 36, 47)
TO VC-177 BOARD (1/14, 3/14, 5/14, 6/14, 9/14)
CK_CONT
2
TO VC-177 BOARD (1/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 31, 36, 46)
SYS_V
A_4.9V
D_3.2V
REG_GND
14
TO VC-177 BOARD (14/14)
(SEE PAGE 4-64)
MEMI_VD
15
TO VC-177 BOARD (4/14)
(SEE PAGE 4-30)
A5
E5
E4
E13
L1654
10uH
2520
A5
A3
A4
A2
A1
2.9
2.8
2.6
0.2
2.9
0
2.6
3.1
3.1
2.9
2.7
0
3.1
S1
1.5
S2
2.9
73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51
61
60
50 2.8
49 3.1
S3
48
47
46
45
44
43
42
41
40
39 3.1
38 1.5 Y0
37 1.4 Y1
36 1.2 Y2
35 0.8 Y3
34 1.8 Y4
33 0.4 Y5
32 2.5 Y6
31 0.8 Y7
30
29
28
27
26
59
58
56
57
(F-15)
IC152
CAMERA Y/C PROCESSER
IC152
CXD2175R-T6
CAMERA Y PROCESS
CAMERA C PROCESS
E13
XSG_V_RST
17
TO VC-177 BOARD (9/14)
(SEE PAGE 4-48)
A4
XCS_SYSTEM
3
TO VC-177 BOARD
(1/14, 3/14, 4/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 25, 30, 31, 36, 46)
A3
VC_SI
18
TO VC-177 BOARD
(3/14, 4/14, 5/14, 6/14, 9/14, 11/14)
(SEE PAGE 4-25, 30, 31, 36, 46, 54)
A1
A2
XVC_SCK
VC_SO
4
TO VC-177 BOARD (1/14, 3/14, 4/14, 5/14, 6/14, 9/14, 11/14, 12/14)
(SEE PAGE 4-19, 25, 30, 31, 36, 46, 54, 57)
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
3.1
1.1
1.1
1.1
1.1
3.1
3.1
C3
C2
C1
C0
CAM
55

VC-177 (CAMERA (3)) SCHEMATIC DIAGRAM

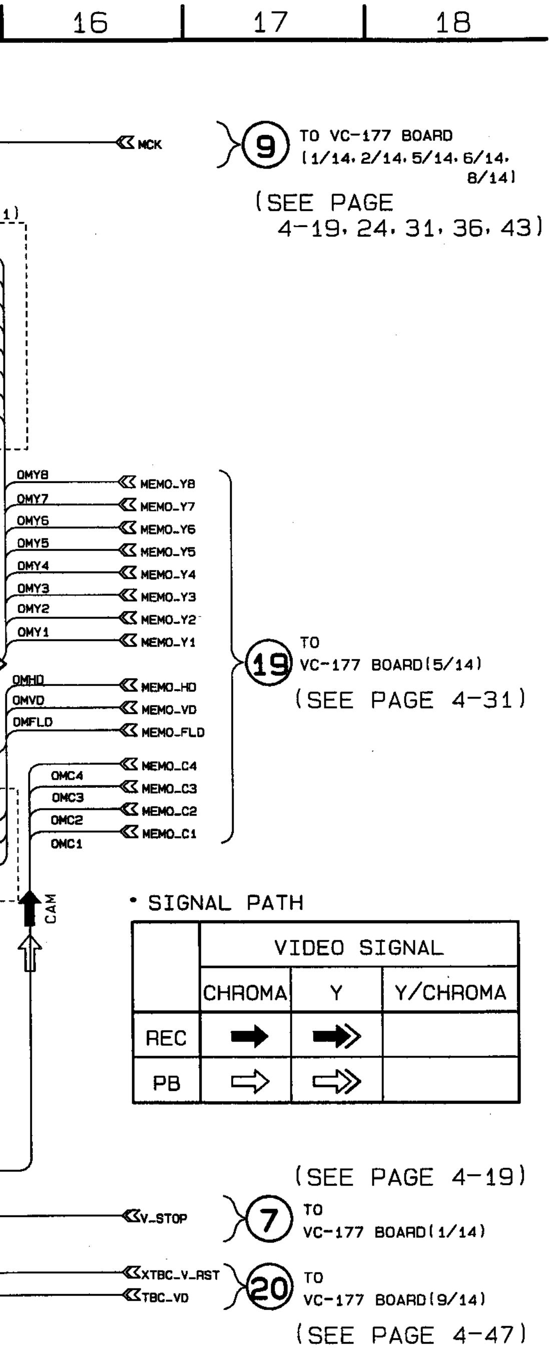
- **Refer to page 4–13 for Printed Wiring Board.**

— Ref No. VC-177 BOARD: 10,000 series —


1 2 3 4 5 6 7 8 9
A B C D E F G
VC-177 BOARD(3/14)
(ME BLOCK)
no mark : CAMERA REC mode
TO VC-177 BOARD (1/14,5/14,6/14,9/14) (SEE PAGE 4-19,24,36,31,47)
5
XRST_SYSTEM
XRST
TO VC-177 BOARD (1/14,2/14,4/14,5/14,6/14,9/14,11/14,12/14) (SEE PAGE 4-19,24,30,31,36,46,54,57)
4
VC_SO
XVC_SCK
SI
XSCK
TO VC-177 BOARD (2/14,4/14,5/14,6/14,11/14) (SEE PAGE 4-19,24,30,31,36,54)
18
VC_SI
SO
TO VC-177 BOARD (1/14,2/14,4/14,5/14,6/14,9/14) (SEE PAGE 4-19,24,30,31,36,46)
3
XCS_SYSTEM
XCS
MEMI_Y8
MEMI_Y7
MEMI_Y6
MEMI_Y5
MEMI_Y4
MEMI_Y3
MEMI_Y2
MEMI_Y1
IY8 IY7 IY6 IY5 IY4 IY3 IY2 IY1
TO VC-177 BOARD (2/14,5/14) (SEE PAGE 4-24,31)
13
MEMI_HD
MEMI_VD
MEMI_FLD
IHD IVD IFLD
MEMI_C4
MEMI_C3
MEMI_C2
MEMI_C1
IC4 IC3 IC2 IC1
TO VC-177 BOARD (14/14) (SEE PAGE 4-63)
21
SYS_V
CL
D_3.2
REG_GND
SYSV
CAM
(EXCEPT TRV31)
SYSV XRST XSCK XCS SI SO
C1702 1 F
FB1701 HS601
(E-17)
IC114
ZOOM TBC PROCESSOR
IC114 CXD2177R-T6
ZOOM TBC PROCESS
2.6 0 3 3 1.3 3.1 1 3 2.6 0.2 2.8
2.8 3 1.5 3.1
1.4 1.4 1.2 0.8 1.8 0.5 2.5 0.8
3.1 3.1 1.5 1.5 1.2 0.8 1.8 0.6 2.4 1
0 3
1.1 3.1 1.1 1.5 3 2.8 3.1
60 61
IC1 IC2 IC3 IC4
OC4 OC3 OC2 OC1
OFLD OVD OHD
R17
(TRV3
09



8
9
10
11
12
13
14
15
16
(E-2)
IC115
CNR PROCESSOR
IC115
CXD2178R-T6
CNR PROCESS
(TRV81)
(TRV31)
(TRV41/TRV51)
R1731 0
C1703 0.01 B
R1730 0
R1729 0
R1728 0
R1727 0
R1726 0
R1725 0
R1724 0
R1722 0
R1720 0
R1718 0
R1717 0
R1716 0
R1723 0
R1719 0
XRST
NC
VSS
IY1
IY2
IY3
IY4
IY5
IY6
IY7
IY8
VDD
IHD
IVD
IFLD
AVD
AVS
TSAD
IC1
IC2
IC3
IC4
OC4
OC3
OC2
OC1
OT2
TST1
TST2
TST3
MCK
VCK
SYSV
XSCK
XCS
SI
SO
OY1
OY2
OY3
OY4
OY5
OY6
OY7
OY8
OHD
OVD
OFLD
TST4
OT1
OMY1
OMY2
OMY3
OMY4
OMY5
OMY6
OMY7
OMY8
OMHD
OMVD
OMFLD
OMC1
OMC2
OMC3
OMC4
CAM
MCK
V_ST
XTBC
TBC
61
62
63
64
65
66

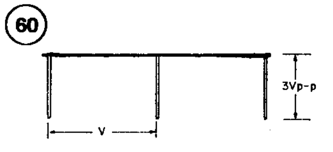

16
17
18
MCK
9
TO VC-177 BOARD
(1/14, 2/14, 5/14, 6/14, 8/14)
(SEE PAGE 4-19, 24, 31, 36, 43)
OMY8
OMY7
OMY6
OMY5
OMY4
OMY3
OMY2
OMY1
MEMO_Y8
MEMO_Y7
MEMO_Y6
MEMO_Y5
MEMO_Y4
MEMO_Y3
MEMO_Y2
MEMO_Y1
19
TO
VC-177 BOARD (5/14)
(SEE PAGE 4-31)
OMHD
OMVD
OMFLD
MEMO_HD
MEMO_VD
MEMO_FLD
OMC4
OMC3
OMC2
OMC1
MEMO_C4
MEMO_C3
MEMO_C2
MEMO_C1
CAM
(SEE PAGE 4-19)
V_STOP
7
TO
VC-177 BOARD (1/14)
XTBC_V_RST
TBC_VD
20
TO
VC-177 BOARD (9/14)
(SEE PAGE 4-47)

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡»	
PB	⇨	⇨»	

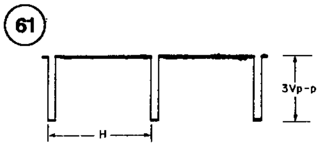
VC-177 BOARD (ME BLOCK)

(60)



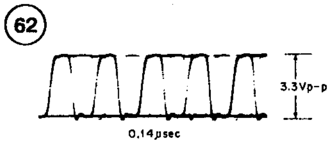
IC114 ⑰ CAMERA REC

(61)



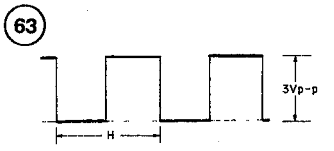
IC114 ⑱ CAMERA REC

(62)



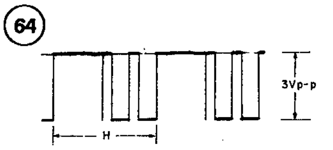
IC115 ⑪—⑭ CAMERA REC

(63)



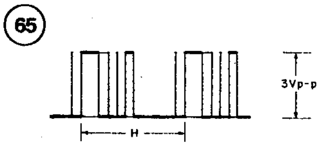
IC115 ㉔ CAMERA REC

(64)



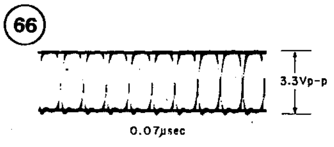
IC115 ㉕ CAMERA REC

(65)



IC115 ㉖ CAMERA REC

(66)

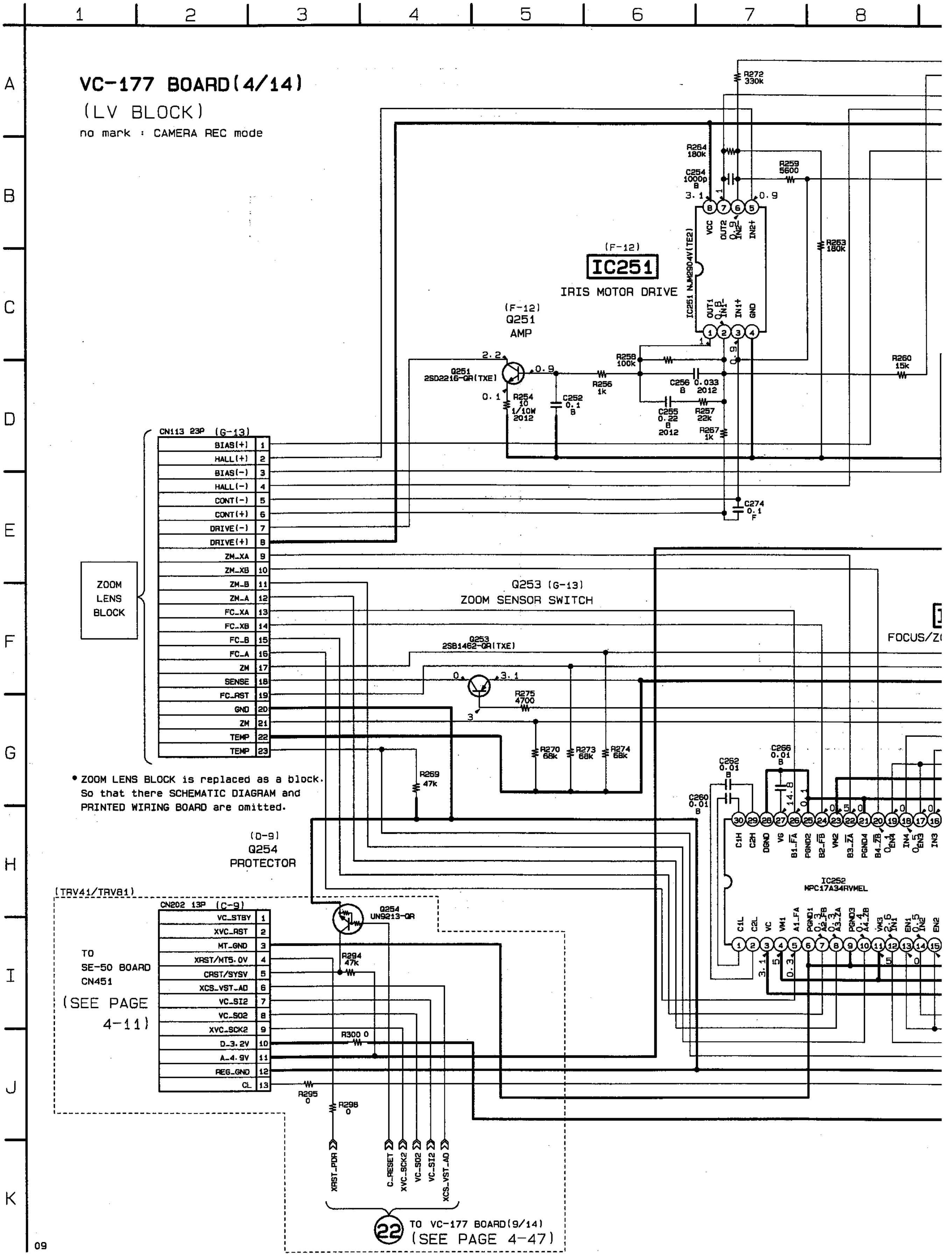


IC115 ㉗—㉛ CAMERA REC

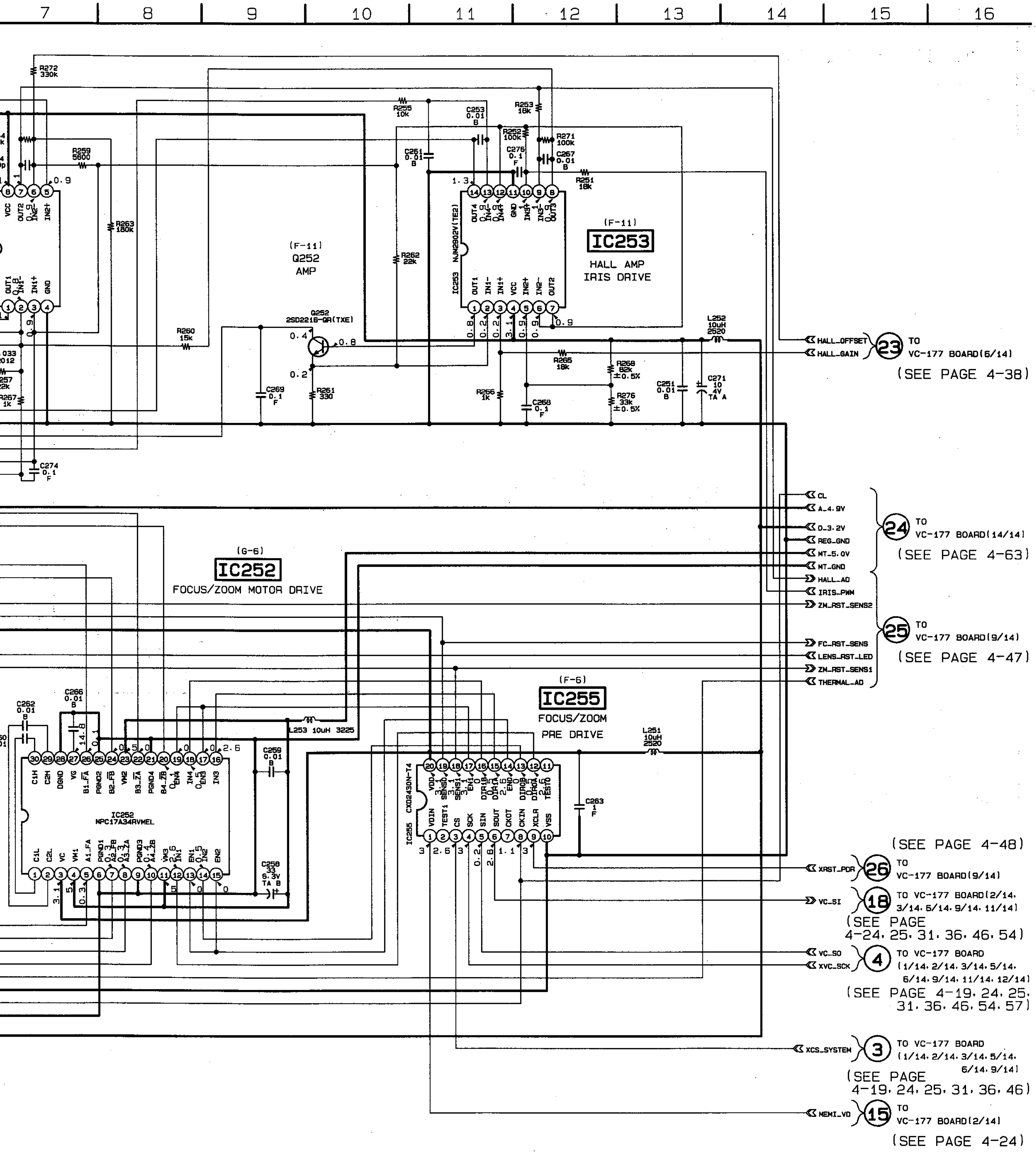
VC-177 (CAMERA (4)) SCHEMATIC DIAGRAM

- Refer to page 4–13 for Printed Wiring Board.

— Ref No. VC-177 BOARD: 10,000 series —


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
VC-177 BOARD(4/14)
(LV BLOCK)
no mark : CAMERA REC mode
IC251
IRIS MOTOR DRIVE
(F-12)
IC251 NJM2904V(TE2)
VCC
OUT2
IN2-
IN2+
OUT1
IN1-
IN1+
GND
R272 330k
R264 180k
C254 1000p B
R259 5600
R263 180K
(F-12)
Q251
AMP
Q251 2SD2216-QR(TXE)
R254 10 1/10W 2012
C252 0.1 B
R256 1k
R258 100k
C256 0.033 B 2012
C255 0.22 B 2012
R257 22k
R267 1k
R260 15k
C274 0.1 F
CN113 23P (G-13)
BIAS(+)
HALL(+)
BIAS(-)
HALL(-)
CONT(-)
CONT(+)
DRIVE(-)
DRIVE(+)
ZM_XA
ZM_XB
ZM_B
ZM_A
FC_XA
FC_XB
FC_B
FC_A
ZM
SENSE
FC_RST
GND
ZM
TEMP
TEMP
ZOOM LENS BLOCK
Q253 (G-13)
ZOOM SENSOR SWITCH
Q253 2SB1462-QR(TXE)
R275 4700
R270 68k
R273 68k
R274 68k
R269 47k
FOCUS/Z
• ZOOM LENS BLOCK is replaced as a block. So that there SCHEMATIC DIAGRAM and PRINTED WIRING BOARD are omitted.
(D-9)
Q254
PROTECTOR
Q254 UN9213-QR
R294 47k
R300 0
R295 0
R298 0
(TRV41/TRV81)
CN202 13P (C-9)
VC_STBY
XVC_RST
MT_GND
XRST/MTS.0V
CRST/SYSV
XCS_VST_AD
VC_SI2
VC_SO2
XVC_SCK2
D_3.2V
A_4.9V
REG_GND
CL
TO SE-50 BOARD CN451
(SEE PAGE 4-11)
XRST_PDR
C_RESET
XVC_SCK2
VC_SO2
VC_SI2
XCS_VST_AD
22
TO VC-177 BOARD(9/14)
(SEE PAGE 4-47)
C262 0.01 B
C266 0.01 B
C260 0.01 B
IC252
MPC17A34RVMEL
C1H
C2H
DGND
VG
B1_FA
PGND2
B2_FB
VM2
B3_ZA
PGND4
B4_ZB
EN4
IN4
EN3
IN3
C1L
C2L
VC
VM1
A1_FA
PGND1
A2_FB
A3_ZA
PGND3
A4_ZB
VM3
IN1
EN1
IN2
EN2
3.1
0.9
0.9
1
0.8
1
0.9
2.2
0.9
0.1
0
3.1
3
14.8
0.1
5
0
0
3.1
5
0.3
2.6
0.5
5
0
09

Viring Board.

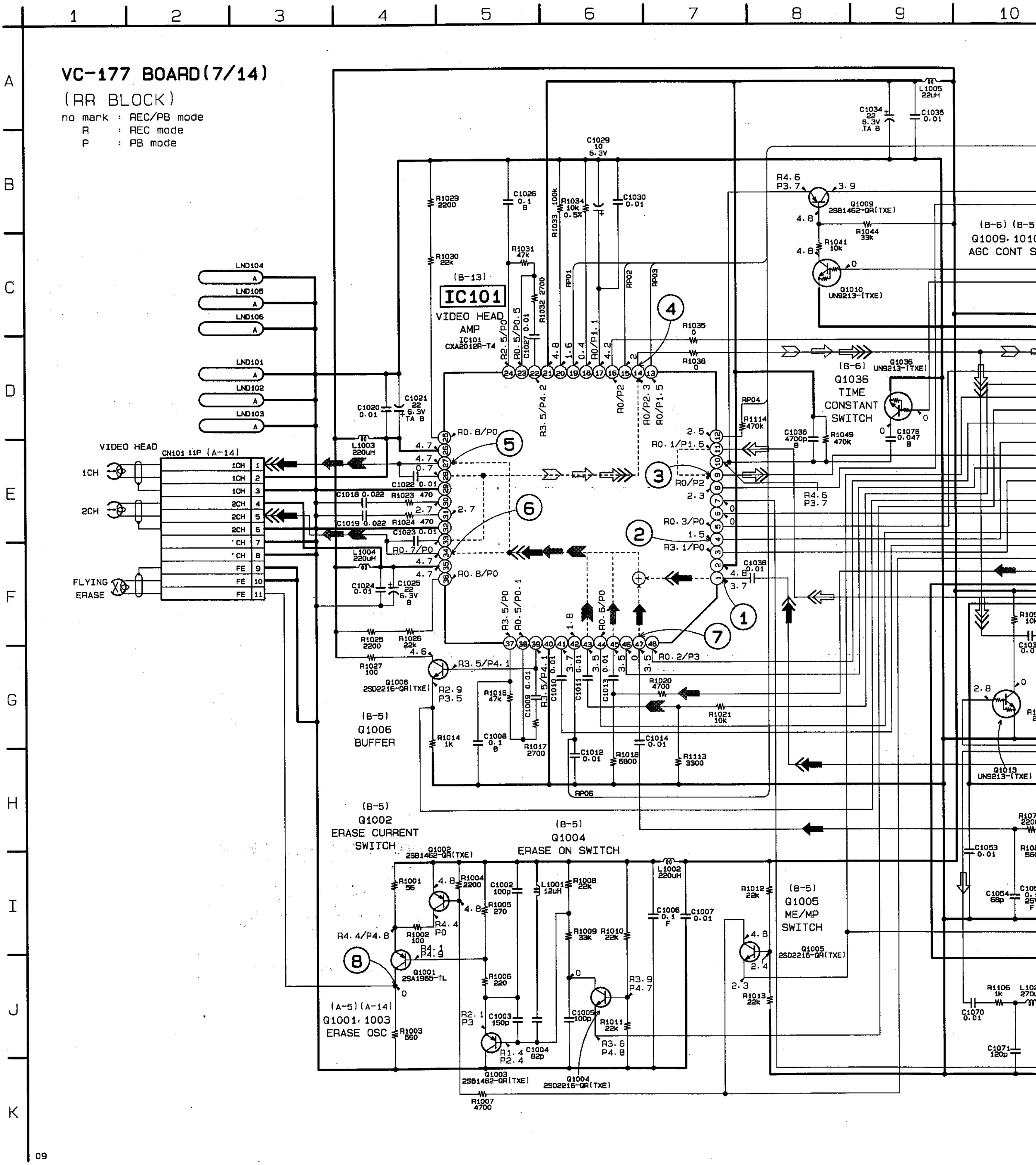


7
8
9
10
11
12
13
14
15
16
R272 330k
R259 5600
R263 180k
R260 15k
R257 22k
R267 1k
C274 0.1 F
(F-11) Q252 AMP
Q252 2SD2216-QR(TXE)
C269 0.1 F
R261 330
R255 10k
C253 0.01 B
R253 18k
R252 100k
R271 100k
C276 0.1 F
C267 0.01 B
R251 18k
C251 0.01 B
R262 22k
IC253 NJM2902V(TE2)
OUT4 IN4- IN4+ GND IN3+ IN3- OUT3
OUT1 IN1- IN1+ VCC IN2+ IN2- OUT2
(F-11) IC253 HALL AMP IRIS DRIVE
L252 10uH 2520
R265 18k
R268 82k ±0.5%
R276 33k ±0.5%
R266 1k
C268 0.1 F
C251 0.01 B
C271 10 4V TA A
HALL_OFFSET
HALL_GAIN
23 TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)
CL
A_4.9V
D_3.2V
REG_GND
MT_5.0V
MT_GND
HALL_AD
IRIS_PWM
ZM_RST_SENS2
24 TO VC-177 BOARD(14/14)
(SEE PAGE 4-63)
FC_RST_SENS
LENS_RST_LED
ZM_RST_SENS1
THERMAL_AD
25 TO VC-177 BOARD(9/14)
(SEE PAGE 4-47)
(G-6) IC252 FOCUS/ZOOM MOTOR DRIVE
C262 0.01 B
C266 0.01 B
L253 10uH 3225
C259 0.01 B
C258 33 6.3V TA B
C1H C2H DGND VG B1_FA PGND2 B2_FB VM2 B3_ZA PGND4 B4_ZB EN4 IN4 EN3 IN3
IC252 MPC17A34RVMEL
C1L C2L VC VM1 A1_FA PGND1 A2_FB A3_ZA PGND3 A4_ZB VM3 IN1 EN1 IN2 EN2
(F-6) IC255 FOCUS/ZOOM PRE DRIVE
L251 10uH 2520
C263 1 F
IC255 CXD2430N-T4
VDD SENS0 SENS1 EN1 DIR1B DIR1A EN0 DIR0B DIR0A TEST0
VDIN TEST1 CS SCK SIN SOUT CKOT CKIN XCLR VSS
(SEE PAGE 4-48)
XRST_PDR
26 TO VC-177 BOARD(9/14)
VC_SI
18 TO VC-177 BOARD(2/14, 3/14, 6/14, 9/14, 11/14)
(SEE PAGE 4-24, 25, 31, 36, 46, 54)
VC_SO
XVC_SCK
4 TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14, 9/14, 11/14, 12/14)
(SEE PAGE 4-19, 24, 25, 31, 36, 46, 54, 57)
XCS_SYSTEM
3 TO VC-177 BOARD (1/14, 2/14, 3/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-19, 24, 25, 31, 36, 46)
MEMI_VD
15 TO VC-177 BOARD(2/14)
(SEE PAGE 4-24)

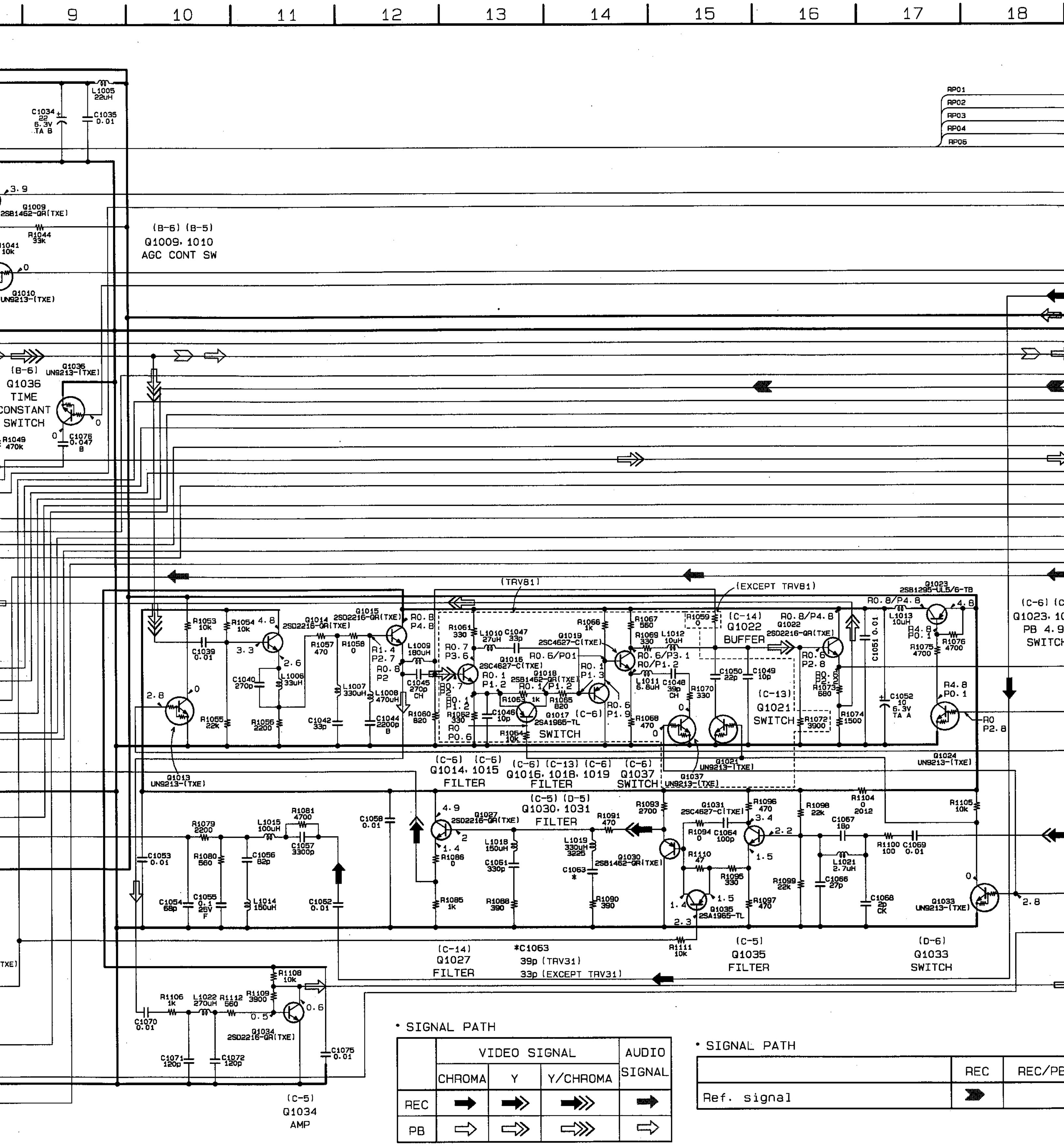
VC-177 (REC/PB HEAD AMP) SCHEMATIC DIAGRAM

- Refer to page 4–13 for Printed Wiring Board.

— Ref No. VC-177 BOARD: 10,000 series —


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
K
VC-177 BOARD(7/14)
(RR BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
IC101
VIDEO HEAD AMP
IC101 CXA2012R-T4
(B-13)
VIDEO HEAD
1CH
2CH
FLYING ERASE
CN101 11P (A-14)
LND101
LND102
LND103
LND104
LND105
LND106
(B-5) Q1006 BUFFER
Q1006 2SD2216-QR(TXE)
(B-5) Q1002 ERASE CURRENT SWITCH
Q1002 2SB1462-QR(TXE)
(B-5) Q1004 ERASE ON SWITCH
Q1004 2SD2216-QR(TXE)
(A-5) (A-14) Q1001, 1003 ERASE OSC
Q1001 2SA1965-TL
Q1003 2SB1462-QR(TXE)
(B-5) Q1005 ME/MP SWITCH
Q1005 2SD2216-QR(TXE)
(B-6) Q1036 TIME CONSTANT SWITCH
Q1036 UN9213-(TXE)
Q1009 2SB1462-QR(TXE)
Q1010 UN9213-(TXE)
Q1013 UN9213-(TXE)
(B-6) (B-5
Q1009, 101
AGC CONT S
L1005 22uH
L1003 220uH
L1004 220uH
L1002 220uH
L1001 12uH
RP01
RP02
RP03
RP04
RP06

Board.



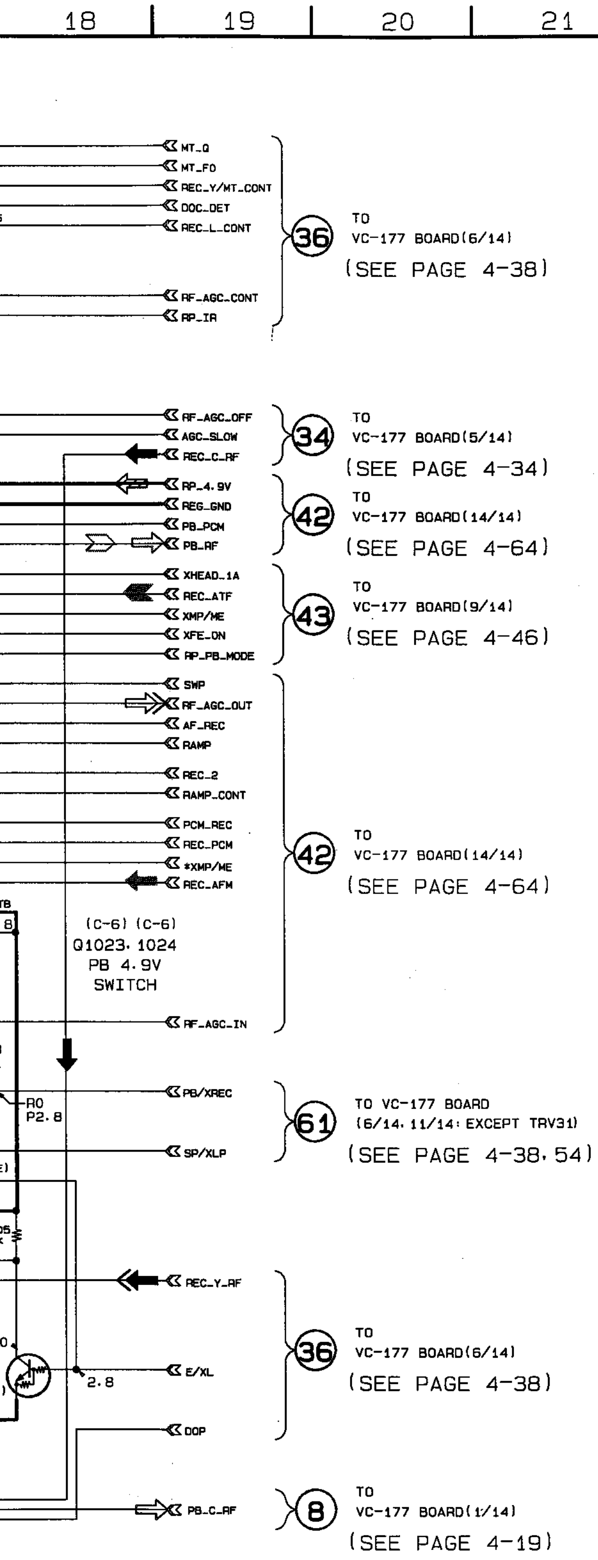
9
10
11
12
13
14
15
16
17
18
L1005 22uH
C1034 22 6.3V TA B
C1035 0.01
RP01
RP02
RP03
RP04
RP06
3.9
Q1009 2SB1462-QR(TXE)
R1044 33k
R1041 10k
0
Q1010 UN9213-(TXE)
(B-6) (B-5)
Q1009, 1010
AGC CONT SW
Q1036 UN9213-(TXE)
(B-6)
Q1036
TIME
CONSTANT
SWITCH
R1049 470k
C1076 0.047 B
(TRV81)
(EXCEPT TRV81)
Q1023 2SB1295-UL5/6-TB
(C-6) (C
Q1023, 10
PB 4.9
SWITCH
R1053 10k
R1054 10k
4.8
Q1014 2SD2216-QR(TXE)
Q1015 2SD2216-QR(TXE)
R0.8 P4.8
C1039 0.01
3.3
2.6
R1057 470
R1058 0
R1.4 P2.7
L1009 180uH
C1040 270p
L1006 33uH
L1007 330uH
L1008 470uH
R0.8 P2
C1045 270p CH
2.8
0
R1055 22k
R1056 2200
C1042 33p
C1044 2200p B
R1060 820
Q1013 UN9213-(TXE)
R1061 330
L1010 27uH
C1047 33p
Q1019 2SC4627-C(TXE)
R0.7 P3.6
Q1016 2SC4627-C(TXE)
R0.6/P01
R0.1 P1.2
Q1018 2SB1462-QR(TXE)
R0.1/P1.2
R0.1 P1.3
R0.7 P2
R0.1 P1.2
R1063 1k
R1065 820
R1052 330
C1046 10p
Q1017 2SA1965-TL
(C-6)
R0 P0.6
R1064 10k
SWITCH
R1066 1k
R1067 560
R1069 330
L1012 10uH
R0.6/P3.1
R0/P1.2
L1011 6.8uH
C1048 39p CH
R1070 330
R0.6 P1.9
R1068 470
0
0
R1059 0
(C-14)
Q1022
BUFFER
R0.8/P4.8
Q1022 2SD2216-QR(TXE)
C1050 22p
C1049 10p
(C-13)
Q1021
SWITCH
R1072 3900
R0.6 P2.8
R0.6 P2.2
R1073 680
R1074 1500
C1051 0.01
R0.8/P4.8
L1013 10uH
4.8
R4.8 P0.1
R1075 4700
R1076 4700
C1052 10 6.3V TA A
R4.8 P0.1
R0 P2.8
Q1024 UN9213-(TXE)
(C-6) (C-6)
Q1014, 1015
FILTER
(C-6) (C-13) (C-6)
Q1016, 1018, 1019
FILTER
(C-6)
Q1037
SWITCH
Q1021 UN9213-(TXE)
Q1037 UN9213-(TXE)
(C-5) (D-5)
Q1030, 1031
FILTER
4.9
Q1027 2SD2216-QR(TXE)
2
1.4
R1086 0
R1085 1k
R1079 2200
L1015 100uH
R1081 4700
C1057 3300p
C1053 0.01
R1080 560
C1056 82p
C1054 68p
C1055 0.1 25V F
L1014 150uH
C1052 0.01
C1058 0.01
L1018 150uH
C1051 330p
R1088 390
L1019 330uH 3225
C1063 *
R1090 390
R1091 470
Q1030 2SB1462-QR(TXE)
R1093 2700
Q1031 2SC4627-C(TXE)
R1094 0
C1064 100p
R1096 470
3.4
2.2
1.5
R1110 47
R1095 330
1.4
1.5
2.3
Q1035 2SA1965-TL
R1097 470
R1111 10k
R1098 22k
R1099 22k
C1067 18p
L1021 2.7uH
C1066 27p
R1104 0 2012
R1100 100
C1069 0.01
C1068 2p CK
R1105 10k
0
Q1033 UN9213-(TXE)
2.8
(C-14)
Q1027
FILTER
*C1063
39p (TRV31)
33p (EXCEPT TRV31)
(C-5)
Q1035
FILTER
(D-6)
Q1033
SWITCH
TXE)
R1108 10k
R1106 1k
L1022 270uH
R1112 560
R1109 3900
0.5
0.6
Q1034 2SD2216-QR(TXE)
C1070 0.01
C1071 120p
C1072 120p
C1075 0.01
(C-5)
Q1034
AMP

• SIGNAL PATH

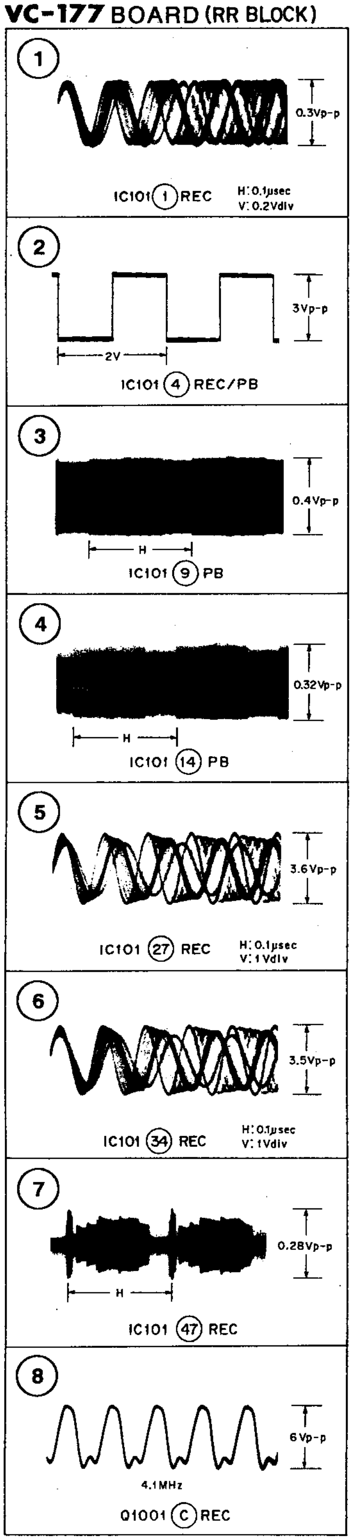
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡⋙	➡
PB	⇨	⇨»	⇨⋙	⇨

• SIGNAL PATH

	REC	REC/PE
Ref. signal	➤	

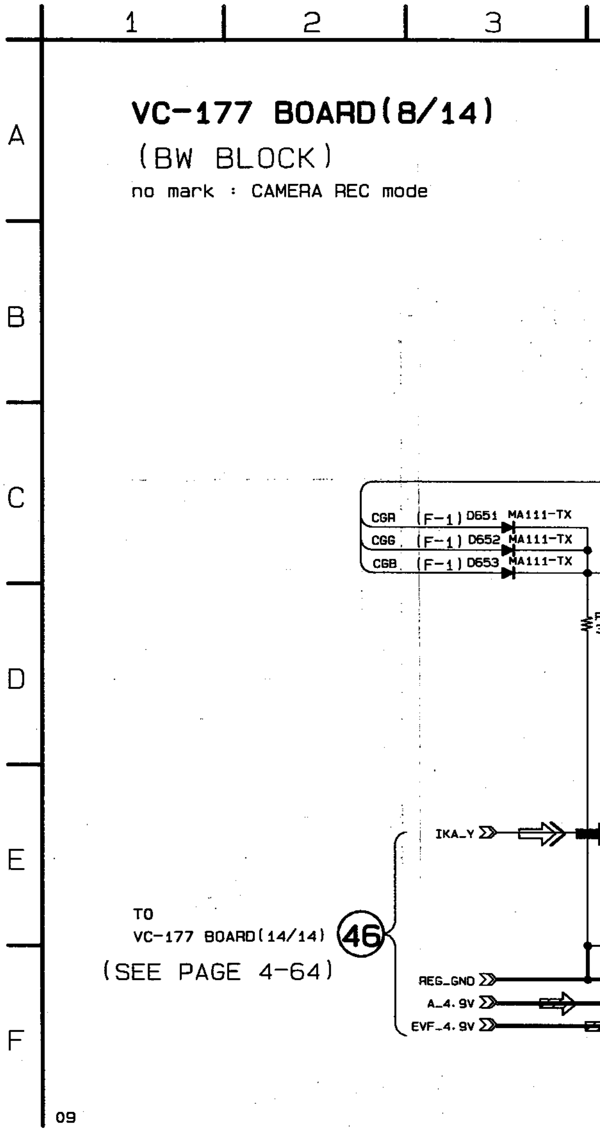

18
19
20
21
MT_Q
MT_FO
REC_Y/MT_CONT
DOC_DET
REC_L_CONT
36
TO
VC-177 BOARD(6/14)
(SEE PAGE 4-38)
RF_AGC_CONT
RP_IR
RF_AGC_OFF
AGC_SLOW
REC_C_RF
34
TO
VC-177 BOARD(5/14)
(SEE PAGE 4-34)
RP_4.9V
REG_GND
PB_PCM
PB_RF
42
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-64)
XHEAD_1A
REC_ATF
XMP/ME
XFE_ON
RP_PB_MODE
43
TO
VC-177 BOARD(9/14)
(SEE PAGE 4-46)
SWP
RF_AGC_OUT
AF_REC
RAMP
REC_2
RAMP_CONT
PCM_REC
REC_PCM
*XMP/ME
REC_AFM
42
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-64)
(C-6) (C-6)
Q1023, 1024
PB 4.9V
SWITCH
RF_AGC_IN
PB/XREC
R0
P2.8
SP/XLP
61
TO VC-177 BOARD
(6/14, 11/14: EXCEPT TRV31)
(SEE PAGE 4-38, 54)
REC_Y_RF
36
TO
VC-177 BOARD(6/14)
(SEE PAGE 4-38)
2.8
E/XL
DOP
PB_C_RF
8
TO
VC-177 BOARD(1/14)
(SEE PAGE 4-19)

REC	REC/PB	PB
➡		⇨

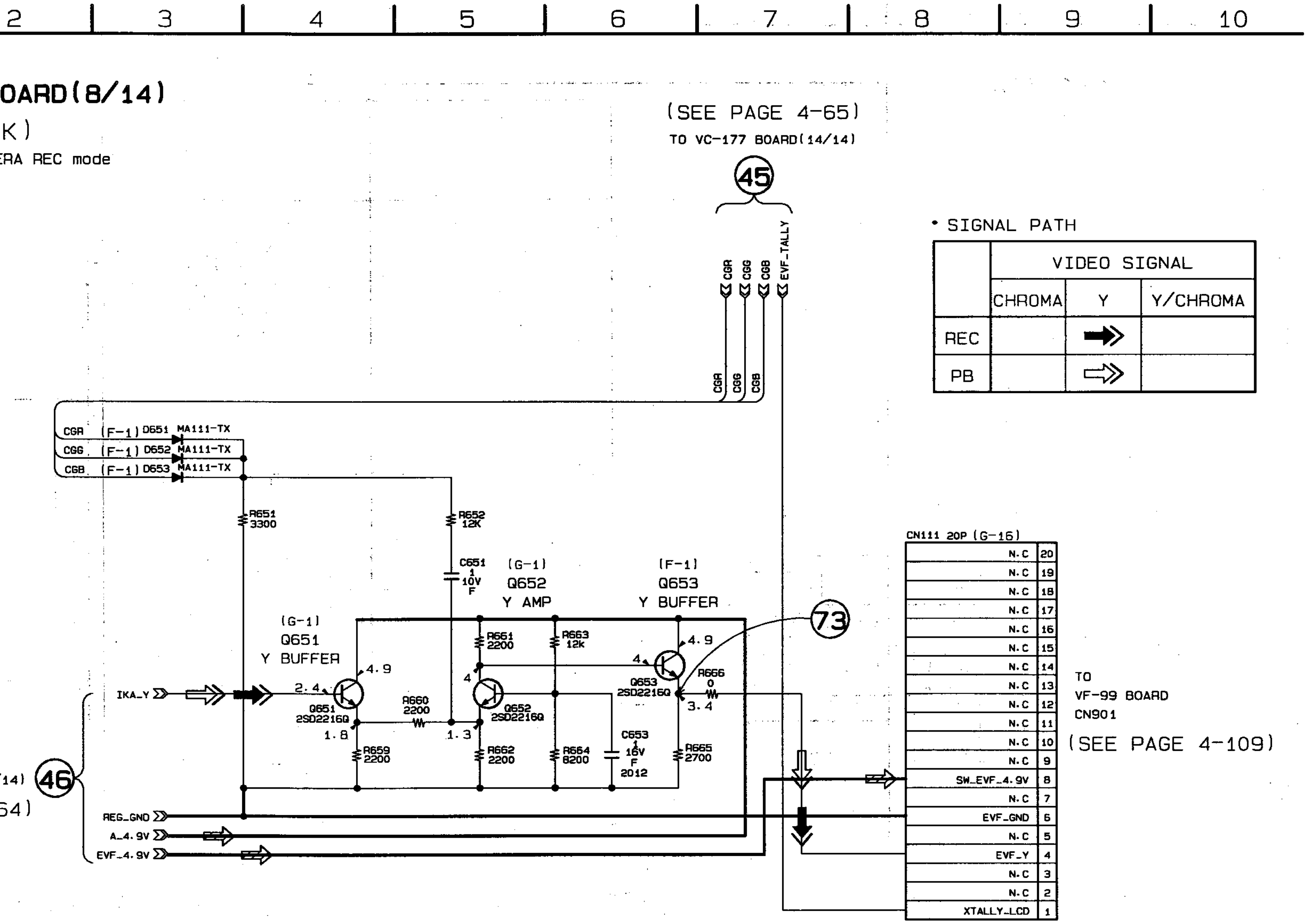

VC-177 BOARD (RR BLOCK)
①
0.3Vp-p
IC101 ① REC
H: 0.1μsec
V: 0.2Vdiv
②
3Vp-p
2V
IC101 ④ REC/PB
③
0.4Vp-p
H
IC101 ⑨ PB
④
0.32Vp-p
H
IC101 ⑭ PB
⑤
3.6Vp-p
IC101 ㉗ REC
H: 0.1μsec
V: 1Vdiv
⑥
3.5Vp-p
IC101 ㉞ REC
H: 0.1μsec
V: 1Vdiv
⑦
0.28Vp-p
H
IC101 ㊼ REC
⑧
6Vp-p
4.1MHz
Q1001 Ⓒ REC

VC-177 (VIDEO PROCESS (2)) SCHEMATIC DIAGRA

— Ref No. VC-177 BOARD: 10,000 series —


1
2
3
A
B
C
D
E
F
VC-177 BOARD(8/14)
(BW BLOCK)
no mark : CAMERA REC mode
CGR
CGG
CGB
(F-1) D651 MA111-TX
(F-1) D652 MA111-TX
(F-1) D653 MA111-TX
IKA_Y
TO
VC-177 BOARD(14/14)
46
(SEE PAGE 4-64)
REG_GND
A_4.9V
EVF_4.9V
09

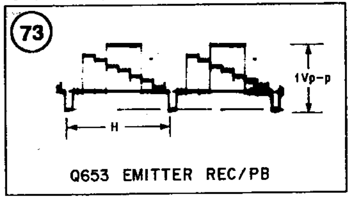
OARD(8/14)
K)
ERA REC mode

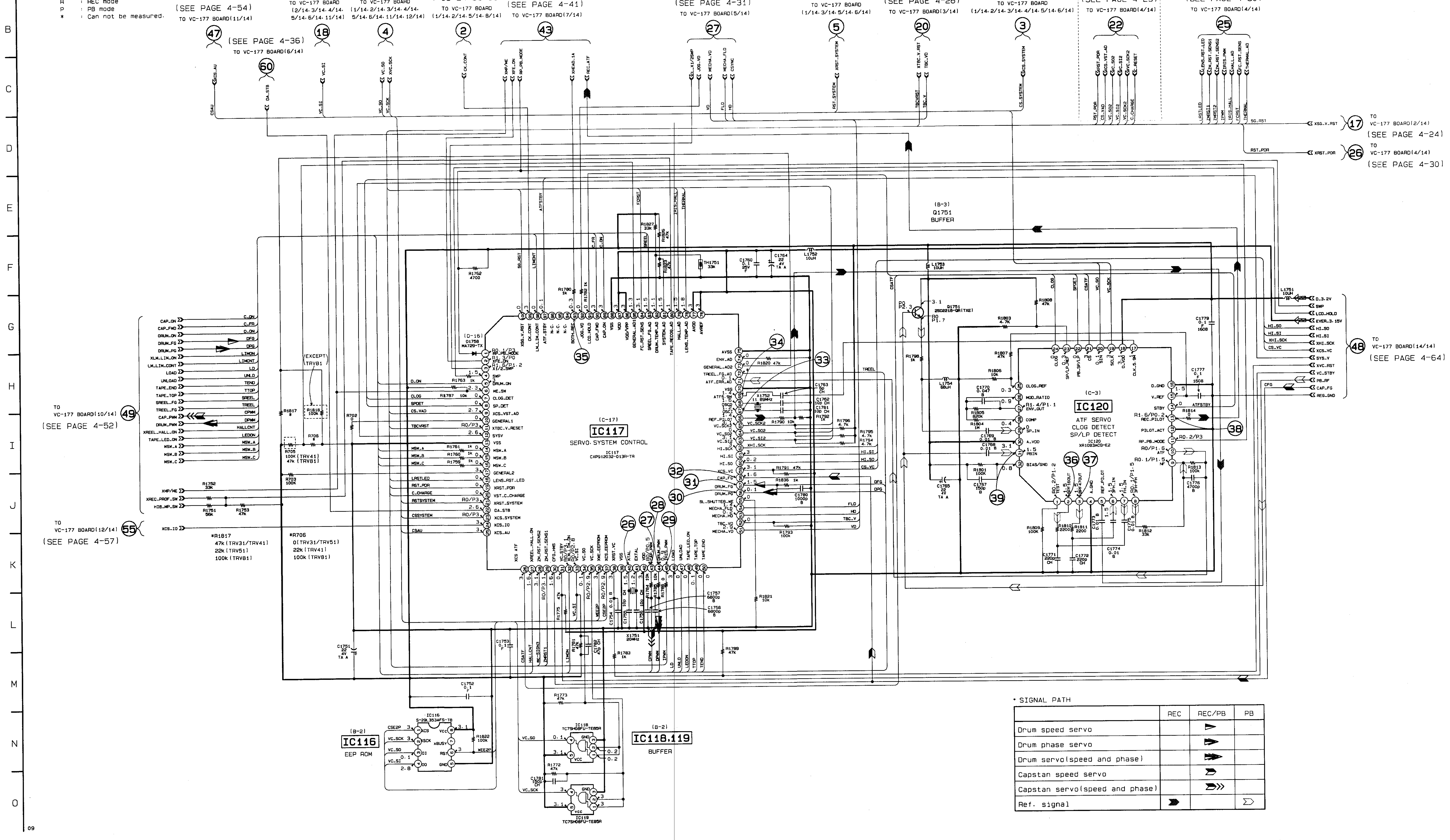

2
3
4
5
6
7
8
9
10
(SEE PAGE 4-65)
TO VC-177 BOARD(14/14)
45
CGR
CGG
CGB
EVF_TALLY
CGR (F-1) D651 MA111-TX
CGG (F-1) D652 MA111-TX
CGB (F-1) D653 MA111-TX
R651 3300
R652 12K
C651 1 10V F
(G-1) Q652 Y AMP
(F-1) Q653 Y BUFFER
73
(G-1) Q651 Y BUFFER
4.9
2.4
Q651 2SD2216Q
1.8
R659 2200
R660 2200
1.3
4
Q652 2SD2216Q
R661 2200
R663 12k
R662 2200
R664 8200
C653 1 16V F 2012
4
4.9
Q653 2SD2216Q
R666 0
3.4
R665 2700
14)
46
64)
IKA_Y
REG_GND
A_4.9V
EVF_4.9V
CN111 20P (G-16)
N.C 20
N.C 19
N.C 18
N.C 17
N.C 16
N.C 15
N.C 14
N.C 13
N.C 12
N.C 11
N.C 10
N.C 9
SW_EVF_4.9V 8
N.C 7
EVF_GND 6
N.C 5
EVF_Y 4
N.C 3
N.C 2
XTALLY_LCD 1
TO VF-99 BOARD CN901
(SEE PAGE 4-109)

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB		⇨	

VC-177 BOARD(BW BLOCK)



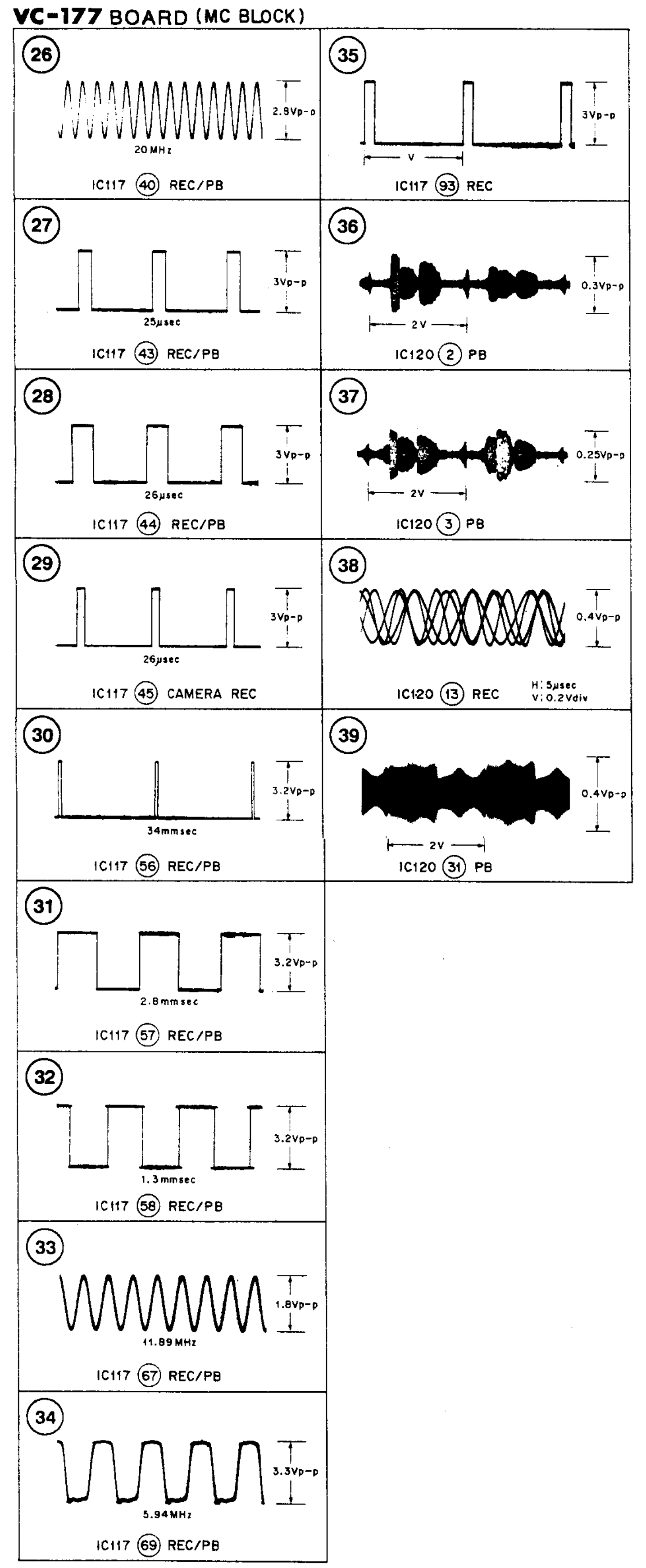


REC mode
PB mode
* : Can not be measured.
(SEE PAGE 4-54)
TO VC-177 BOARD(11/14)
(SEE PAGE 4-36)
TO VC-177 BOARD(6/14)
(SEE PAGE 4-41)
TO VC-177 BOARD(7/14)
(SEE PAGE 4-31)
TO VC-177 BOARD(5/14)
TO VC-177 BOARD(2/14)
(SEE PAGE 4-24)
TO VC-177 BOARD(4/14)
(SEE PAGE 4-30)
TO VC-177 BOARD(14/14)
(SEE PAGE 4-64)
TO VC-177 BOARD(10/14)
(SEE PAGE 4-52)
TO VC-177 BOARD(12/14)
(SEE PAGE 4-57)
(B-3) Q1751 BUFFER
IC117
SERVO/SYSTEM CONTROL
IC120
ATF SERVO
CLOG DETECT
SP/LP DETECT
(B-2) IC116 EEP ROM
(B-2) IC118,119 BUFFER
*R1817 47k(TRV31/TRV41) 22k(TRV51) 100k(TRV81)
*R706 0(TRV31/TRV41) 22k(TRV41) 100k(TRV81)

• SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		⇨	
Drum servo(speed and phase)		⇛	
Capstan speed servo		▶	
Capstan servo(speed and phase)		▶››	
Ref. signal	➤		▷

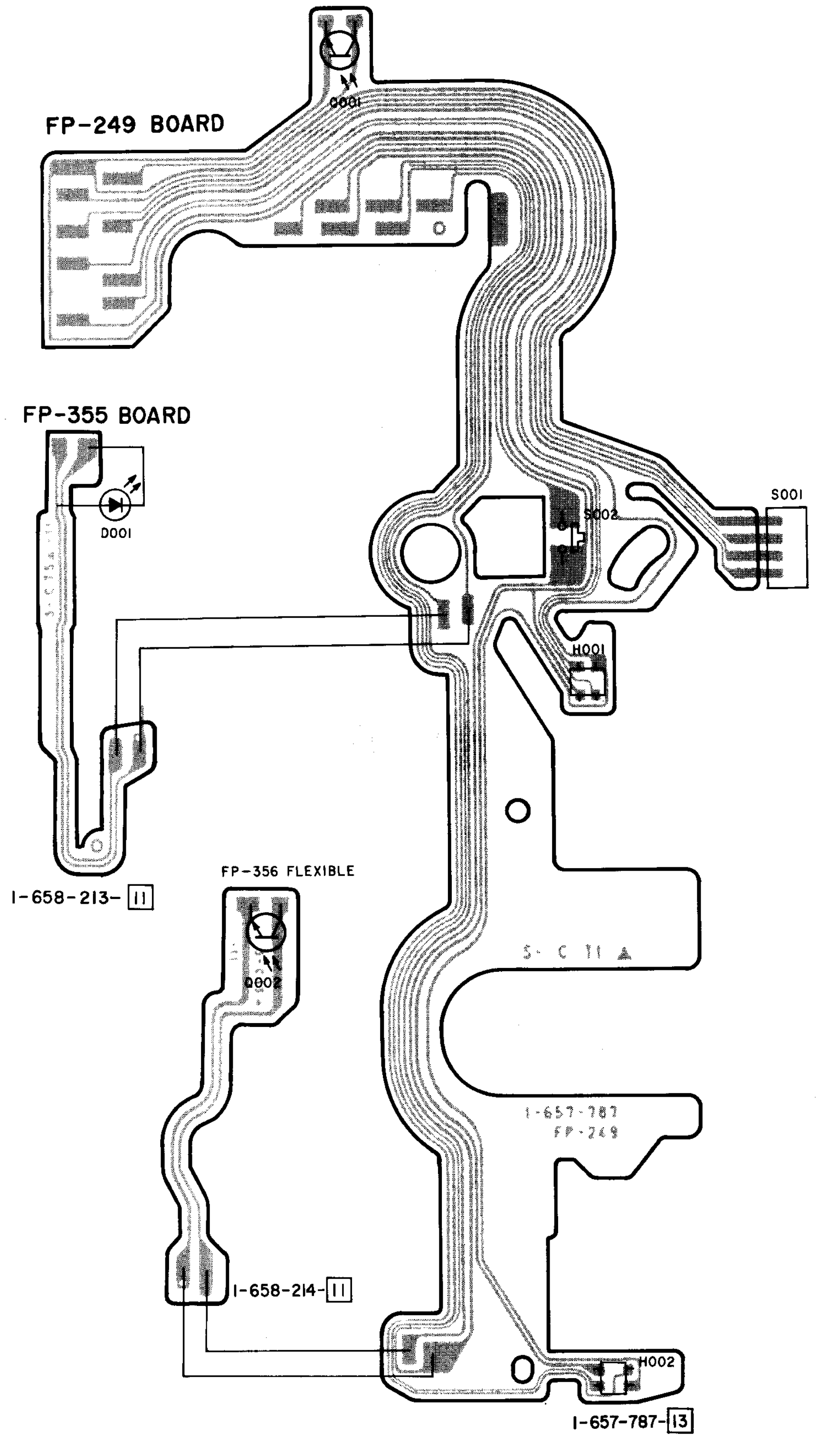
VC-177 BOARD (MC BLOCK)

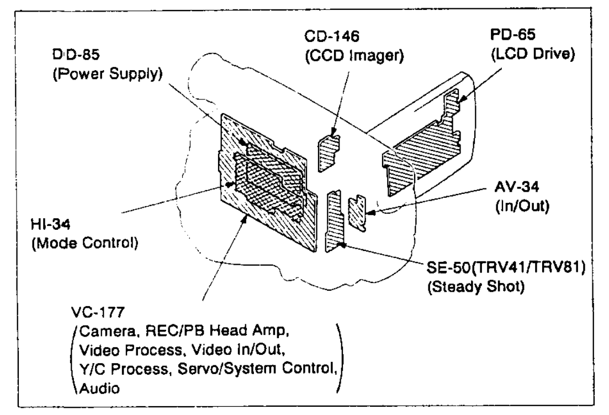


SERVO/SYSTEM CONTROL
VC-177 (9/14)

FP-249 (TAPE SENSOR), FP-355 (TAPE LED), FP-356 (TAPE END SENSOR) PRINTED WIRING BOARDS

— Ref No. FP-249, FP-355 and FP-356 FLEXIBLE BOARDS: 8,000 series —

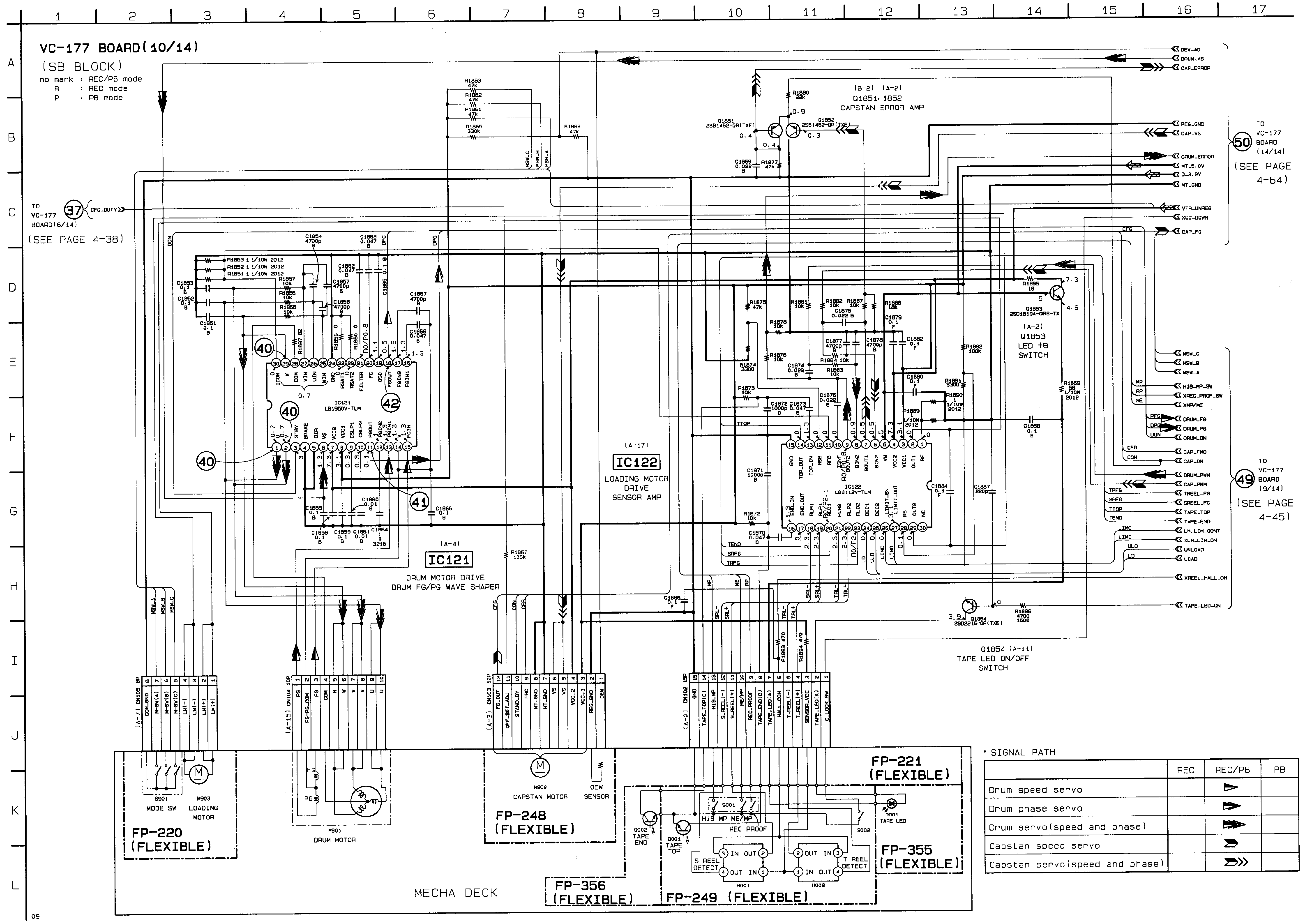

FP-249 BOARD
Q001
D001
FP-355 BOARD
S001
H001
H002
1-658-213-11
FP-356 FLEXIBLE
Q002
S-C 11 A
1-657-787
FP-249
1-658-214-11
1-657-787-13


DD-85
(Power Supply)
CD-146
(CCD Imager)
PD-65
(LCD Drive)
AV-34
(In/Out)
HI-34
(Mode Control)
SE-50(TRV41/TRV81)
(Steady Shot)
VC-177
(Camera, REC/PB Head Amp, Video Process, Video In/Out, Y/C Process, Servo/System Control, Audio)

VC-177 (SERVO) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series, FP-249, FP-355 and FP-356 FLEXIBLE BOARDS: 8,000 series —

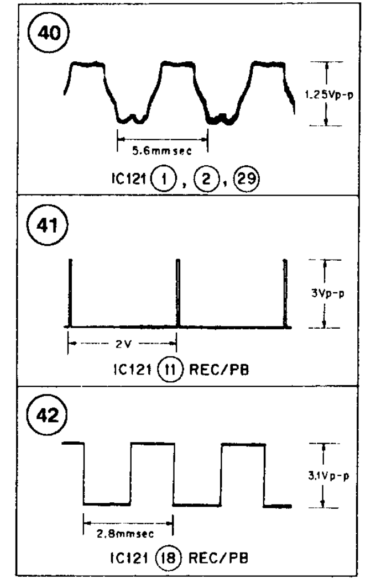
- Refer to page 4–13 for Printed Wiring Board.


VC-177 BOARD(10/14)
(SB BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
TO VC-177 BOARD(6/14)
37
CFG_DUTY
(SEE PAGE 4-38)
(B-2) (A-2)
Q1851, 1852
CAPSTAN ERROR AMP
Q1851 2SB1462-QR(TXE)
Q1852 2SB1462-QR(TXE)
40
41
42
IC121
(A-4)
IC121
DRUM MOTOR DRIVE
DRUM FG/PG WAVE SHAPER
(A-17)
IC122
LOADING MOTOR DRIVE
SENSOR AMP
(A-2)
Q1853
LED +B SWITCH
Q1854 (A-11)
TAPE LED ON/OFF SWITCH
DEW_AD
DRUM_VS
CAP_ERROR
REG_GND
CAP_VS
DRUM_ERROR
MT_5.0V
D_3.2V
MT_GND
VTR_UNREG
XCC_DOWN
CAP_FG
50
TO VC-177 BOARD (14/14)
(SEE PAGE 4-64)
MSW_C
MSW_B
MSW_A
HI8_MP_SW
XREC_PROF_SW
XMP/ME
DRUM_FG
DRUM_PG
DRUM_ON
CAP_FWD
CAP_ON
DRUM_PWM
CAP_PWM
TREEL_FG
SREEL_FG
TAPE_TOP
TAPE_END
LM_LIM_CONT
XLM_LIM_ON
UNLOAD
LOAD
XREEL_HALL_ON
TAPE_LED_ON
49
TO VC-177 BOARD (9/14)
(SEE PAGE 4-45)
(A-7) CN105 8P
COM_GND
M-SW(A)
M-SW(B)
M-SW(C)
LM(-)
LM(+)
(A-15) CN104 10P
PG
FG-PG_COM
FG
COM
W
V
U
(A-3) CN103 12P
FG_OUT
OFF_SET_ADJ
STAND_BY
FRC
MT_GND
VS
VCC_2
VCC_1
REG_GND
DEW
(A-2) CN102 15P
GND
TAPE_TOP(C)
HI8_MP
S_REEL(-)
S_REEL(+)
ME/MP
REC_PROOF
TAPE_END(C)
TAPE_LED(A)
HALL_COM
T_REEL(-)
T_REEL(+)
SENSOR_VCC
TAPE_LED(K)
C_LOCK_SW
S901
MODE SW
M903
LOADING MOTOR
FP-220 (FLEXIBLE)
M901
DRUM MOTOR
M902
CAPSTAN MOTOR
DEW SENSOR
FP-248 (FLEXIBLE)
FP-221 (FLEXIBLE)
Q002 TAPE END
Q001 TAPE TOP
S001
Hi8 MP ME/MP
REC PROOF
S REEL DETECT
T REEL DETECT
H001
H002
S002
D001 TAPE LED
FP-355 (FLEXIBLE)
FP-356 (FLEXIBLE)
FP-249 (FLEXIBLE)
MECHA DECK

- SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▶▷	
Drum servo(speed and phase)		▶▶▷	
Capstan speed servo		➢	
Capstan servo(speed and phase)		➢»	

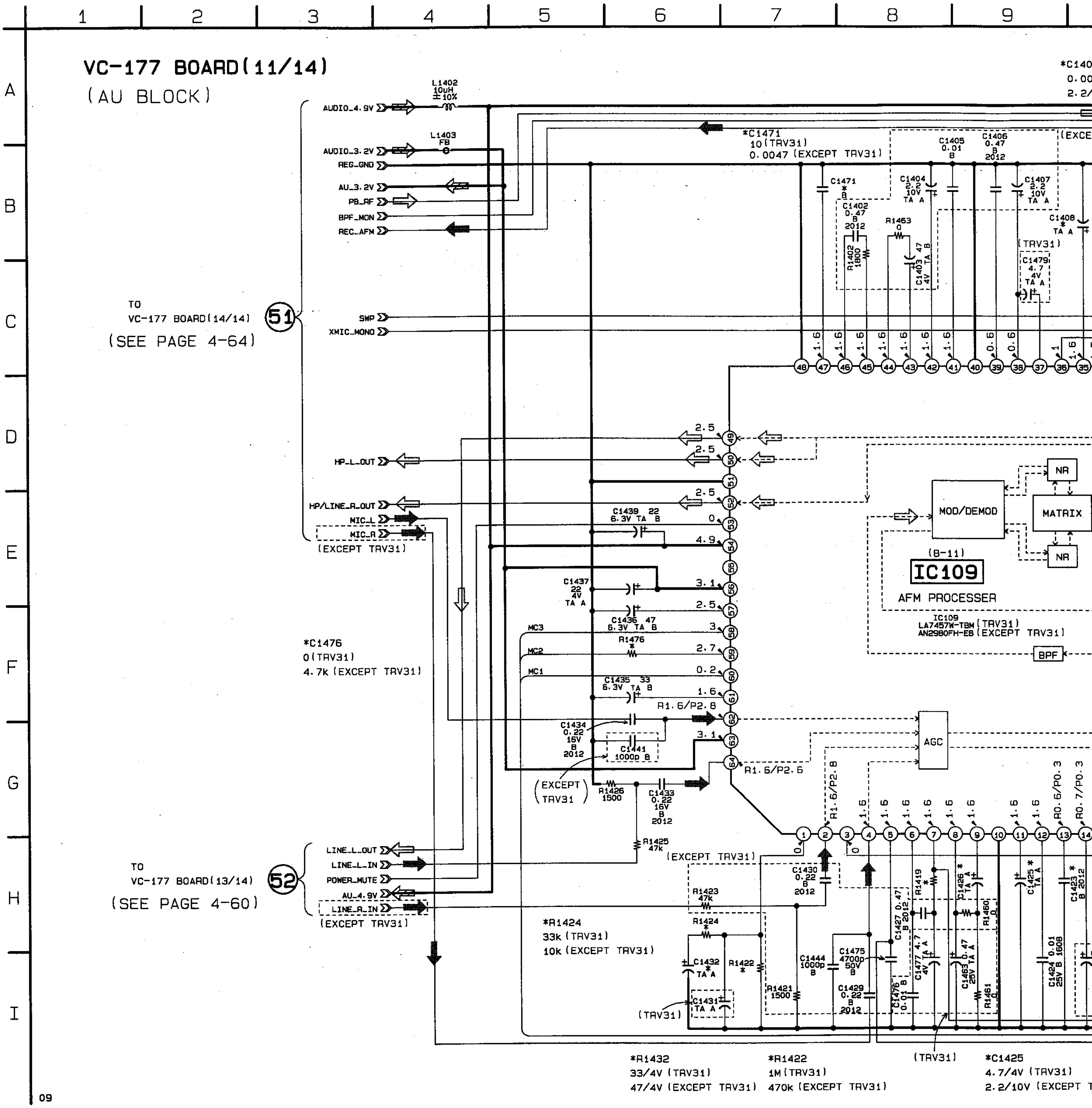
VC-177 BOARD (SB BLOCK)



VC-177 (AUDIO) SCHEMATIC DIAGRAM

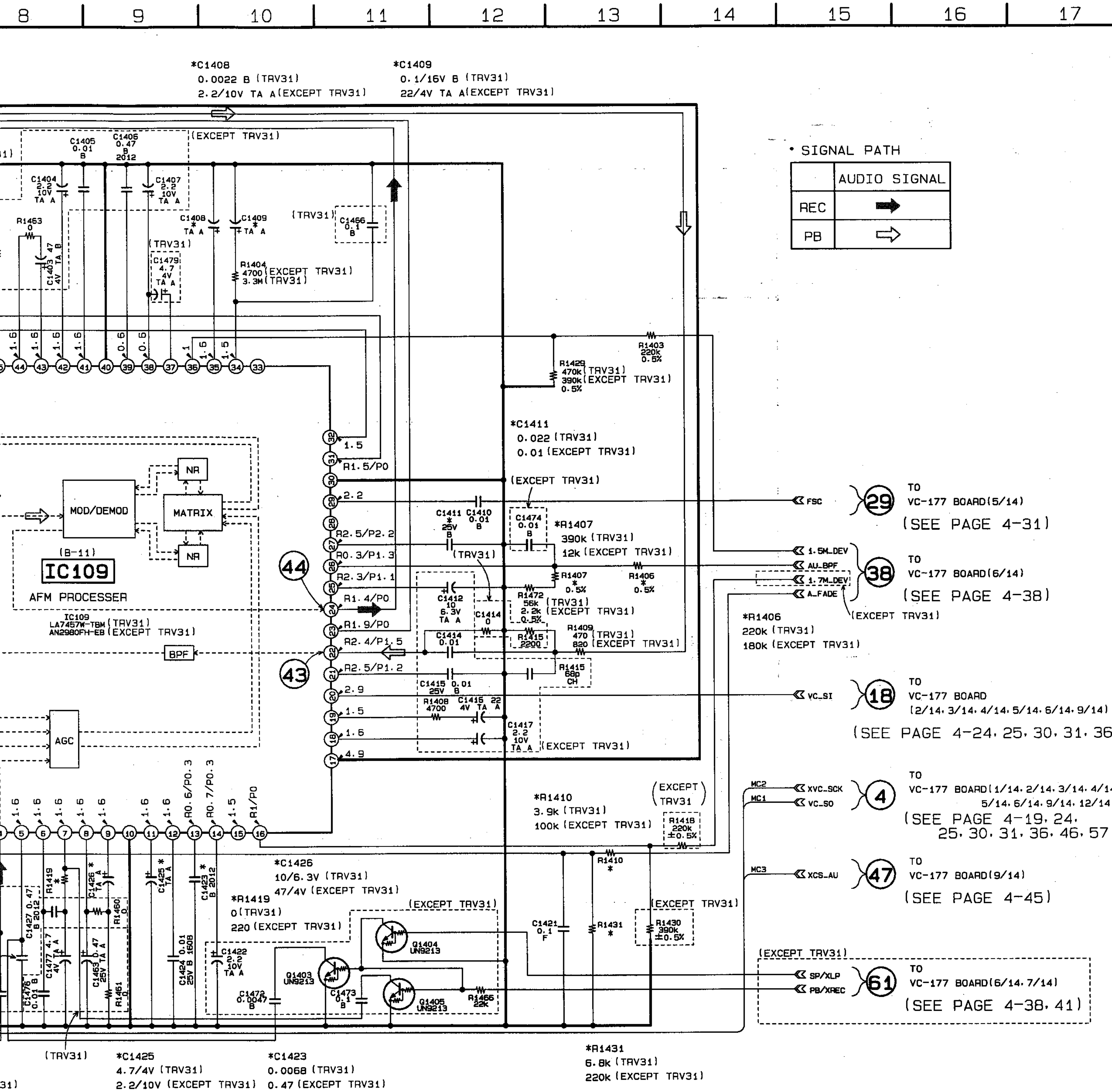
— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
VC-177 BOARD(11/14)
(AU BLOCK)
AUDIO_4.9V
AUDIO_3.2V
REG_GND
AU_3.2V
PB_RF
BPF_MON
REC_AFM
SWP
XMIC_MONO
HP_L_OUT
HP/LINE_R_OUT
MIC_L
MIC_R
(EXCEPT TRV31)
TO
VC-177 BOARD(14/14)
(51)
(SEE PAGE 4-64)
L1402
10uH
±10%
L1403
FB
*C1471
10(TRV31)
0.0047(EXCEPT TRV31)
C1471
*
B
C1405
0.01
B
C1406
0.47
B
2012
C1404
2.2
10V
TA A
C1407
2.2
10V
TA A
C1402
0.47
B
2012
R1463
0
R1402
1800
C1403
47
4V
TA B
C1408
*
TA A
(TRV31)
C1479
4.7
4V
TA A
*C140
0.00
2.2/
(EXCE
1.6
0.6
1
2.5
0
4.9
3.1
3
2.7
0.2
R1.6/P2.8
R1.6/P2.6
C1439 22
6.3V TA B
C1437
22
4V
TA A
C1436 47
6.3V TA B
R1476
*
MC3
MC2
MC1
C1435 33
6.3V TA B
C1434
0.22
16V
B
2012
C1441
1000p B
(EXCEPT TRV31)
R1426
1500
C1433
0.22
16V
B
2012
R1425
47k
*C1476
0(TRV31)
4.7k(EXCEPT TRV31)
NR
MOD/DEMOD
MATRIX
(B-11)
IC109
AFM PROCESSER
IC109
LA7457M-TBM(TRV31)
AN2980FH-EB(EXCEPT TRV31)
BPF
AGC
R0.6/P0.3
R0.7/P0.3
LINE_L_OUT
LINE_L_IN
POWER_MUTE
AU_4.9V
LINE_R_IN
TO
VC-177 BOARD(13/14)
(52)
(SEE PAGE 4-60)
*R1424
33k(TRV31)
10k(EXCEPT TRV31)
C1430
0.22
B
2012
R1423
47k
R1424
*
C1432
*
TA A
R1422
*
C1431
TA A
(TRV31)
R1421
1500
C1444
1000p
B
C1475
4700p
50V
B
C1429
0.22
B
2012
C1427 0.47
B 2012
C1476
0.01 B
C1477 4.7
4V TA A
R1419
*
C1426 *
TA A
R1460
0
C1463 0.47
25V TA A
R1461
0
C1425 *
TA A
C1424 0.01
25V B 1608
C1423 *
B 2012
*R1432
33/4V(TRV31)
47/4V(EXCEPT TRV31)
*R1422
1M(TRV31)
470k(EXCEPT TRV31)
(TRV31)
*C1425
4.7/4V(TRV31)
2.2/10V(EXCEPT T
09

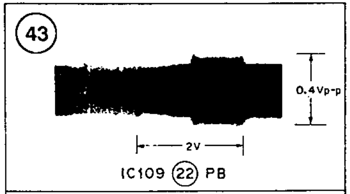
Board.

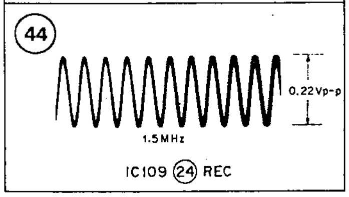


8
9
10
11
12
13
14
15
16
17
*C1408
0.0022 B (TRV31)
2.2/10V TA A(EXCEPT TRV31)
*C1409
0.1/16V B (TRV31)
22/4V TA A(EXCEPT TRV31)
• SIGNAL PATH
AUDIO SIGNAL
REC ➡
PB ⇨
(EXCEPT TRV31)
C1405 0.01 B
C1406 0.47 B 2012
C1404 2.2 10V TA A
C1407 2.2 10V TA A
R1463 0
C1403 47 4V TA B
C1408 * TA A
C1409 * TA A
(TRV31) C1466 0.1 B
(TRV31) C1479 4.7 4V TA A
R1404 4700 (EXCEPT TRV31) 3.3M (TRV31)
R1403 220k 0.5%
R1429 470k (TRV31) 390k (EXCEPT TRV31) 0.5%
*C1411
0.022 (TRV31)
0.01 (EXCEPT TRV31)
(EXCEPT TRV31)
NR
MOD/DEMOD
MATRIX
NR
(B-11)
IC109
AFM PROCESSER
IC109
LA7457W-TBM (TRV31)
AN2980FH-EB (EXCEPT TRV31)
BPF
AGC
44
43
1.5
R1.5/P0
2.2
R2.5/P2.2
R0.3/P1.3
R2.3/P1.1
R1.4/P0
R1.9/P0
R2.4/P1.5
R2.5/P1.2
2.9
1.5
1.6
4.9
C1411 * 25V B
C1410 0.01 B
C1474 0.01 B
*R1407
390k (TRV31)
12k (EXCEPT TRV31)
(TRV31)
R1407 * 0.5%
R1406 * 0.5%
C1412 10 6.3V TA A
C1414 0
R1472 56k (TRV31) 2.2k (EXCEPT TRV31) 0.5%
C1414 0.01
R1415 2200
R1409 470 (TRV31) 820 (EXCEPT TRV31)
R1415 68p CH
C1415 0.01 25V B
R1408 4700
C1416 22 4V TA A
C1417 2.2 10V TA A
(EXCEPT TRV31)
*R1406
220k (TRV31)
180k (EXCEPT TRV31)
FSC
29
TO VC-177 BOARD(5/14)
(SEE PAGE 4-31)
1.5M_DEV
AU_BPF
1.7M_DEV
A_FADE
(EXCEPT TRV31)
38
TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)
VC_SI
18
TO VC-177 BOARD (2/14, 3/14, 4/14, 5/14, 6/14, 9/14)
(SEE PAGE 4-24, 25, 30, 31, 36
MC2 XVC_SCK
MC1 VC_SO
4
TO VC-177 BOARD(1/14, 2/14, 3/14, 4/14, 5/14, 6/14, 9/14, 12/14
(SEE PAGE 4-19, 24, 25, 30, 31, 36, 46, 57
MC3 XCS_AU
47
TO VC-177 BOARD(9/14)
(SEE PAGE 4-45)
(EXCEPT TRV31)
SP/XLP
PB/XREC
61
TO VC-177 BOARD(6/14, 7/14)
(SEE PAGE 4-38, 41)
R0.6/P0.3
R0.7/P0.3
1.5
R1/P0
*R1410
3.9k (TRV31)
100k (EXCEPT TRV31)
(EXCEPT TRV31)
R1418 220k ±0.5%
*C1426
10/6.3V (TRV31)
47/4V (EXCEPT TRV31)
*R1419
0 (TRV31)
220 (EXCEPT TRV31)
(EXCEPT TRV31)
(EXCEPT TRV31)
R1410 *
C1421 0.1 F
R1431 *
R1430 390k ±0.5%
C1427 0.47 B 2012
R1419 *
C1426 * TA A
R1460 0
C1425 * TA A
C1423 * B 2012
C1477 4.7 4V TA A
C1463 0.47 25V TA A
C1476 0.01 B
R1461 0
C1424 0.01 25V B 1608
C1422 2.2 10V TA A
Q1404 UN9213
Q1403 UN9213
C1472 0.0047 B
C1473 0.1 B
Q1405 UN9213
R1465 22k
(TRV31)
*C1425
4.7/4V (TRV31)
2.2/10V (EXCEPT TRV31)
*C1423
0.0068 (TRV31)
0.47 (EXCEPT TRV31)
*R1431
6.8k (TRV31)
220k (EXCEPT TRV31)
31)

17

VC-177 BOARD (AU BLOCK)





4)
-31)

4)
-38)

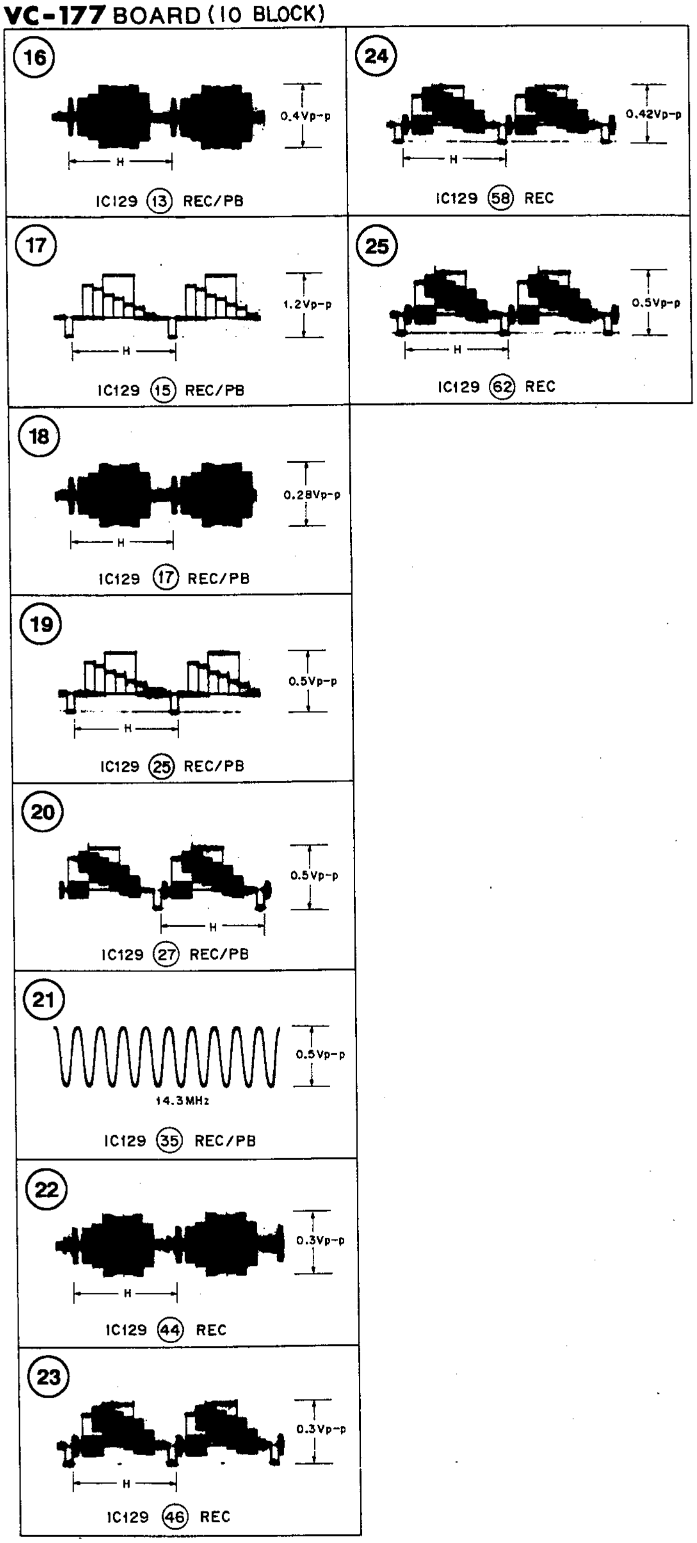
5/14, 6/14, 9/14)
5, 30, 31, 36)

4, 2/14, 3/14, 4/14,
6/14, 9/14, 12/14)
-19, 24,
1, 36, 46, 57)

4)
-45)

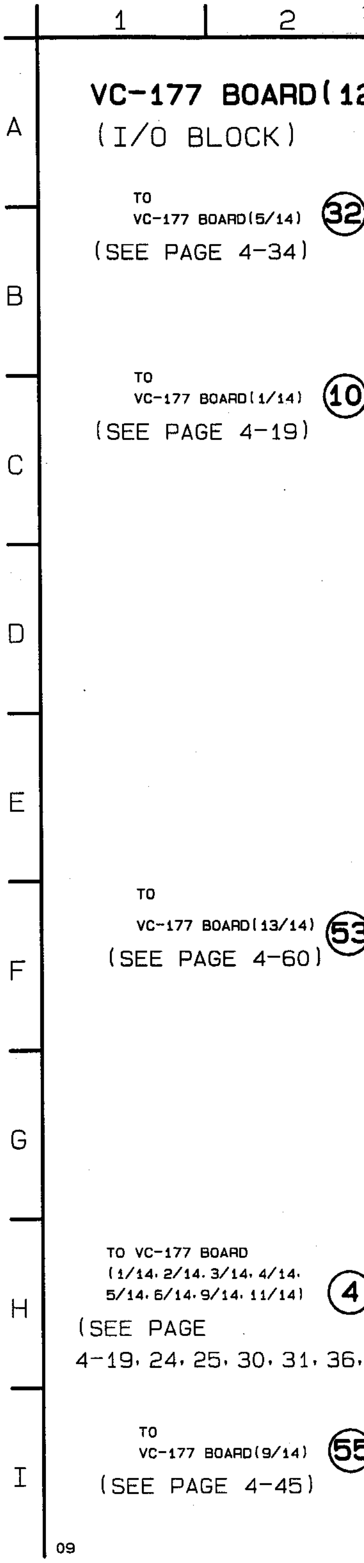
4, 7/14)
-38, 41)

VC-177 BOARD (IO BLOCK)



VC-177 (VIDEO IN/OUT (1)) sc

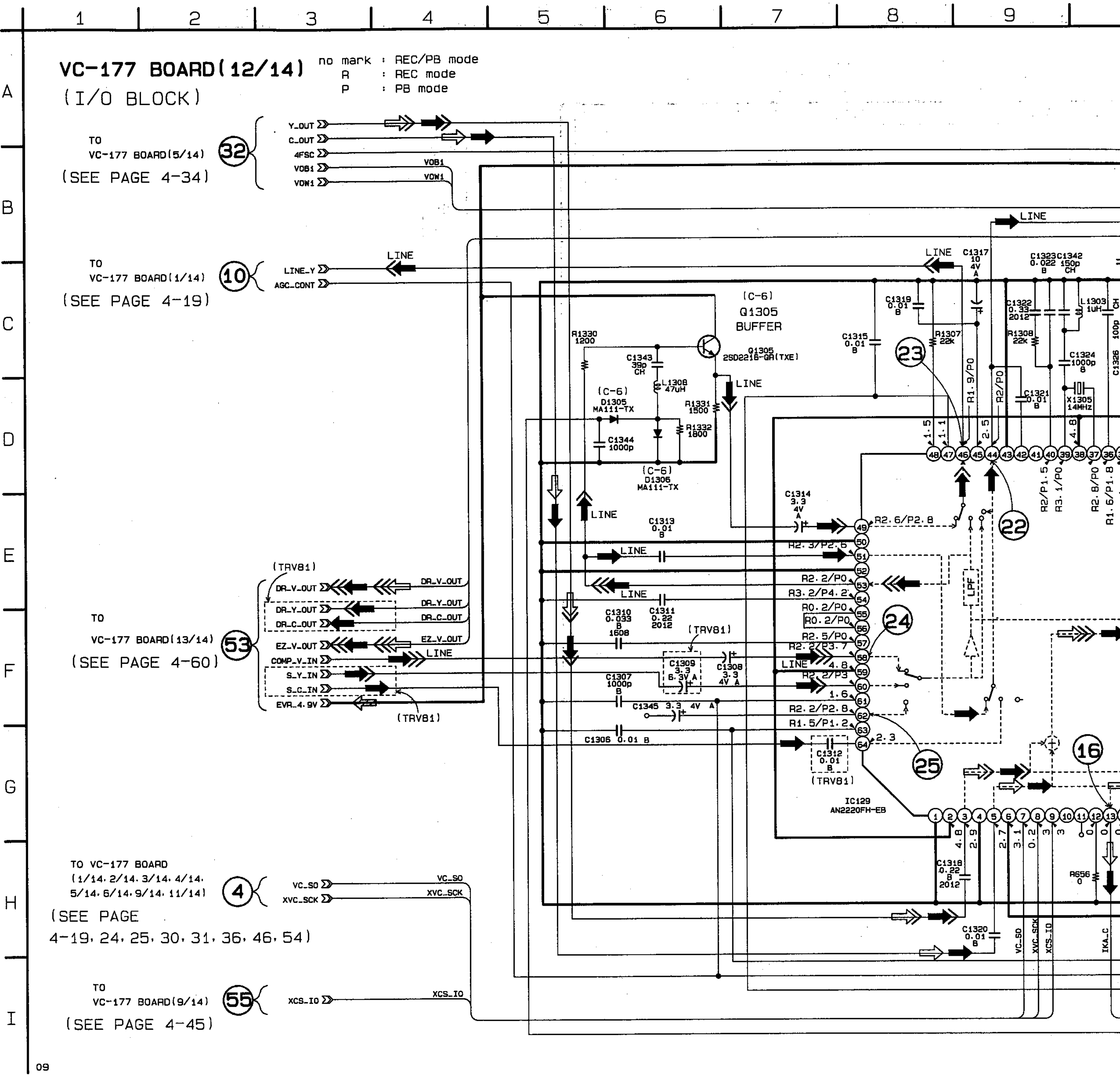
— Ref No. VC-177 BOARD: 10,000 serie


1
2
A
B
C
D
E
F
G
H
I
VC-177 BOARD(12
(I/O BLOCK)
TO
VC-177 BOARD(5/14)
32
(SEE PAGE 4-34)
TO
VC-177 BOARD(1/14)
10
(SEE PAGE 4-19)
TO
VC-177 BOARD(13/14)
53
(SEE PAGE 4-60)
TO VC-177 BOARD
(1/14, 2/14, 3/14, 4/14,
5/14, 6/14, 9/14, 11/14)
4
(SEE PAGE
4-19, 24, 25, 30, 31, 36,
TO
VC-177 BOARD(9/14)
55
(SEE PAGE 4-45)
09

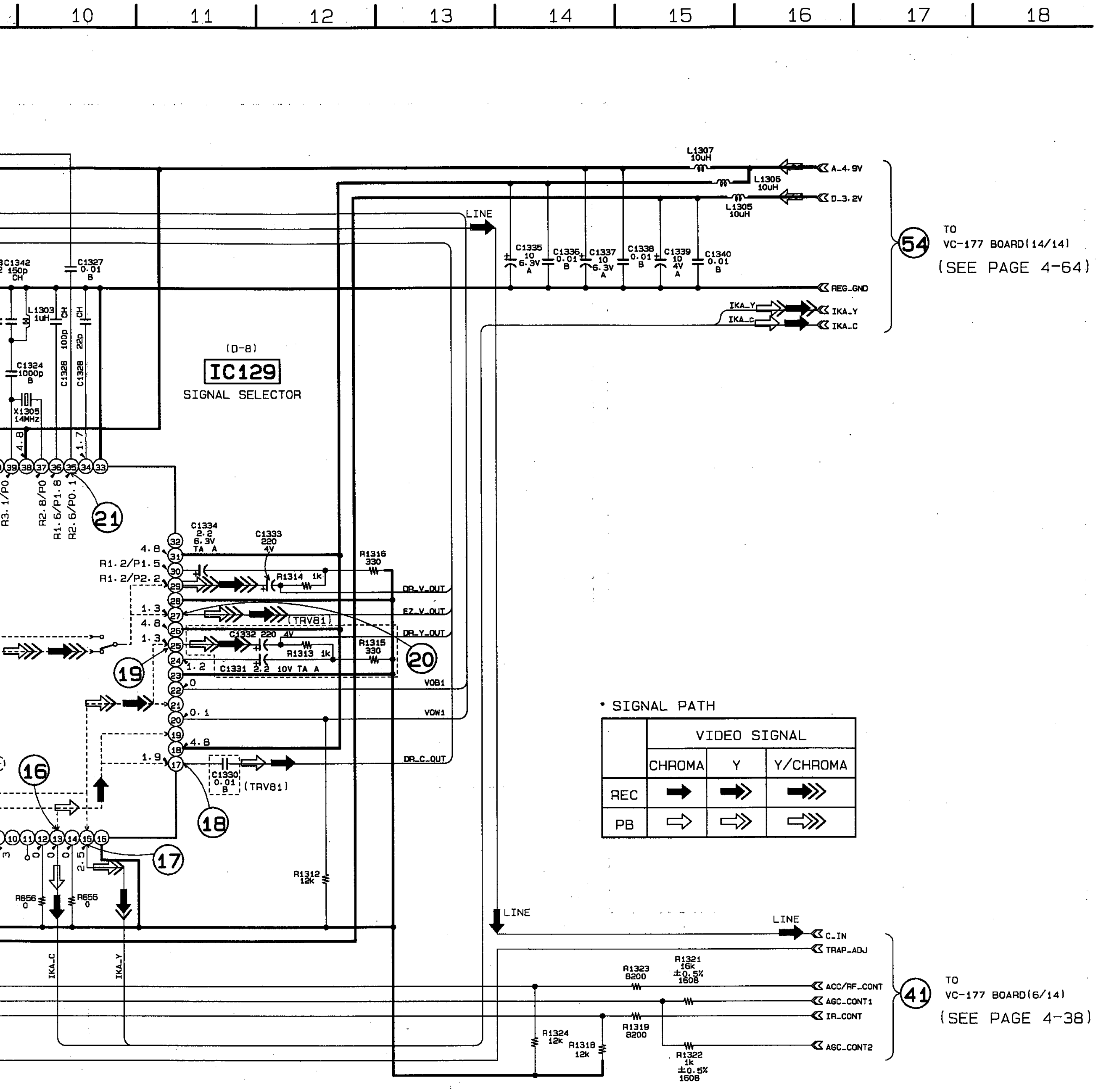
VC-177 (VIDEO IN/OUT (1)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
VC-177 BOARD(12/14)
(I/O BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
TO VC-177 BOARD(5/14) (SEE PAGE 4-34)
32
Y_OUT
C_OUT
4FSC
VOB1
VOW1
TO VC-177 BOARD(1/14) (SEE PAGE 4-19)
10
LINE_Y
AGC_CONT
LINE
(C-6) Q1305 BUFFER
Q1305 2SD2216-QR(TXE)
R1330 1200
C1343 39p CH
L1308 47uH
(C-6) D1305 MA111-TX
C1344 1000p
R1331 1500
R1332 1800
(C-6) D1306 MA111-TX
C1313 0.01 B
C1314 3.3 4V A
C1315 0.01 B
C1319 0.01 B
C1317 10 4V A
R1307 22k
C1323 0.022 B
C1342 150p CH
C1322 0.33 2012
L1303 1uH
R1308 22k
C1324 1000p B
C1321 0.01 B
X1305 14MHz
C1326 100p
23
22
24
25
16
R2.6/P2.8
R2.3/P2.5
R2.2/P0
R3.2/P4.2
R0.2/P0
R2.5/P0
R2.2/P3.7
4.8
R2.2/P3
1.6
R2.2/P2.8
R1.5/P1.2
2.3
R1.9/P0
R2/P0
R2/P1.5
R3.1/P0
R2.8/P0
R1.6/P1.8
LPF
(TRV81)
TO VC-177 BOARD(13/14) (SEE PAGE 4-60)
53
DR_V_OUT
DR_Y_OUT
DR_C_OUT
EZ_V_OUT
COMP_V_IN
S_Y_IN
S_C_IN
EVR_4.9V
C1310 0.033 B 1608
C1311 0.22 2012
C1309 3.3 6.3V A
C1308 3.3 4V A
C1307 1000p B
C1345 3.3 4V A
C1306 0.01 B
C1312 0.01 B
IC129 AN2220FH-EB
C1318 0.22 B 2012
C1320 0.01 B
R656 0
VC_SO
XVC_SCK
XCS_IO
IKA_C
TO VC-177 BOARD (1/14, 2/14, 3/14, 4/14, 5/14, 6/14, 9/14, 11/14) (SEE PAGE 4-19, 24, 25, 30, 31, 36, 46, 54)
4
TO VC-177 BOARD(9/14) (SEE PAGE 4-45)
55
09


10
11
12
13
14
15
16
17
18
L1307 10uH
A_4.9V
L1306 10uH
D_3.2V
L1305 10uH
LINE
C1335 10 6.3V A
C1336 0.01 B
C1337 10 6.3V A
C1338 0.01 B
C1339 10 4V A
C1340 0.01 B
REG_GND
IKA_Y
IKA_C
54
TO VC-177 BOARD(14/14)
(SEE PAGE 4-64)
C1342 150p CH
C1327 0.01 B
L1303 1uH
C1326 100p CH
C1328 22p CH
C1324 1000p B
X1305 14MHz
4.8
1.7
R3.1/P0
R2.8/P0
R1.6/P1.8
R2.6/P0.1
21
(D-8)
IC129
SIGNAL SELECTOR
C1334 2.2 6.3V TA A
C1333 220 4V
R1316 330
R1314 1k
R1.2/P1.5
R1.2/P2.2
DR_V_OUT
EZ_V_OUT
(TRV81)
DR_Y_OUT
C1332 220 4V
R1313 1k
R1315 330
C1331 2.2 10V TA A
VOB1
VOW1
DR_C_OUT
C1330 0.01 B
(TRV81)
R1312 12k
R656 0
R655 0
IKA_C
IKA_Y
16
17
18
19
20
LINE
C_IN
TRAP_ADJ
ACC/RF_CONT
AGC_CONT1
IR_CONT
AGC_CONT2
R1323 8200
R1321 16k ±0.5% 1608
R1319 8200
R1322 1k ±0.5% 1608
R1324 12k
R1318 12k
41
TO VC-177 BOARD(6/14)
(SEE PAGE 4-38)

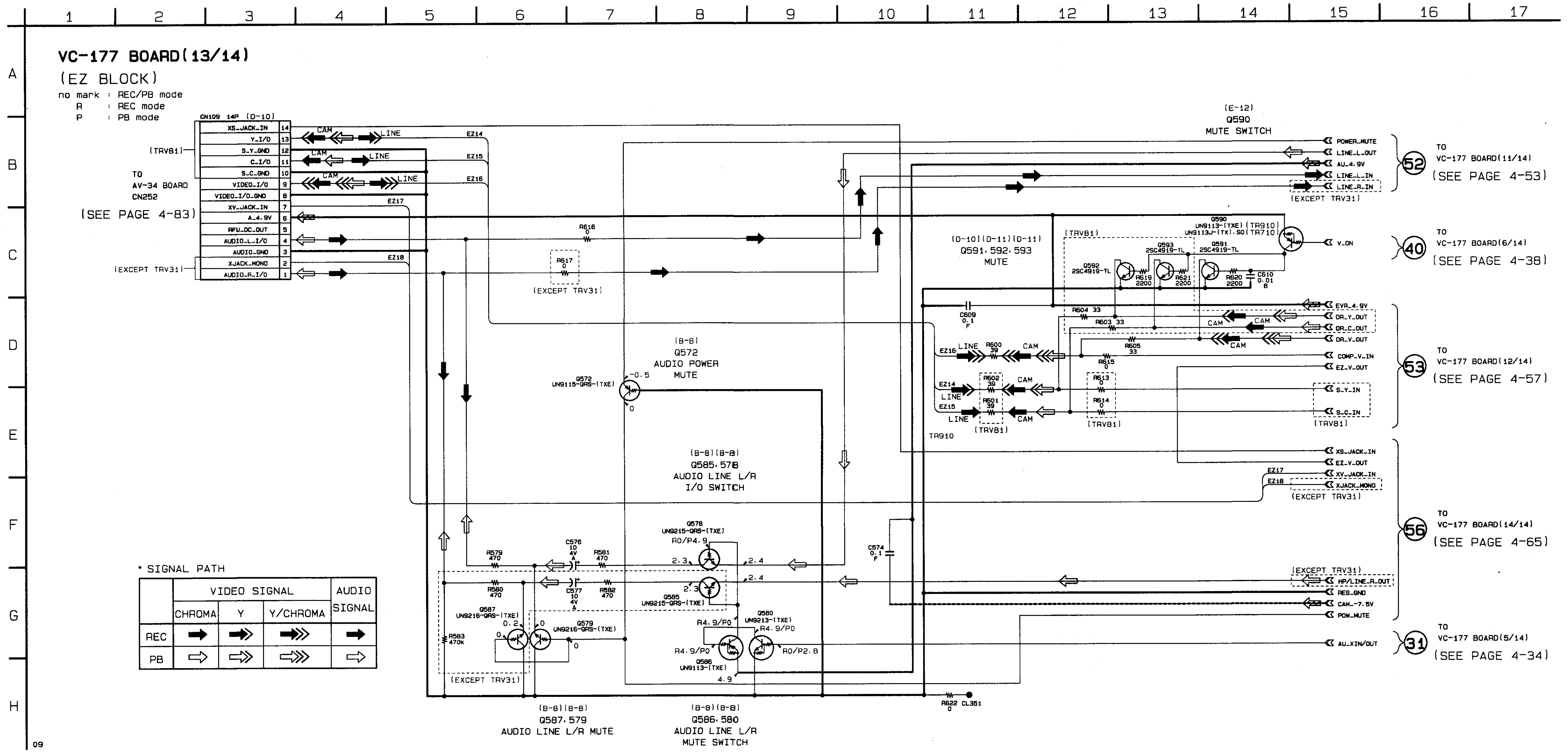
• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡»	➡»»
PB	⇨	⇨»	⇨»»

VC-177 (VIDEO IN/OUT (2)) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4–13 for Printed Wiring Board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
VC-177 BOARD(13/14)
(EZ BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
CN109 14P (D-10)
XS_JACK_IN 14
Y_I/O 13
S_Y_GND 12
C_I/O 11
S_C_GND 10
VIDEO_I/O 9
VIDEO_I/O_GND 8
XV_JACK_IN 7
A_4.9V 6
RFU_DC_OUT 5
AUDIO_L_I/O 4
AUDIO_GND 3
XJACK_MONO 2
AUDIO_R_I/O 1
(TRV81)
TO
AV-34 BOARD
CN252
(SEE PAGE 4-83)
(EXCEPT TRV31)
CAM
LINE
EZ14
EZ15
EZ16
EZ17
EZ18
R617
0
(EXCEPT TRV31)
(B-8)
Q572
AUDIO POWER
MUTE
Q572
UN9115-QRS-(TXE)
-0.5
0
(B-8)(B-8)
Q585, 578
AUDIO LINE L/R
I/O SWITCH
Q578
UN9215-QRS-(TXE)
R0/P4.9
2.3
2.4
Q585
UN9215-QRS-(TXE)
R579
470
C576
10
4V
A
R581
470
R580
470
C577
10
4V
A
R582
470
Q587
UN9216-QRS-(TXE)
0.2
0
Q579
UN9216-QRS-(TXE)
R583
470K
(EXCEPT TRV31)
Q580
UN9213-(TXE)
R4.9/P0
R0/P2.8
Q586
UN9113-(TXE)
4.9
C574
0.1
F
R622
0
CL351
(B-8)(B-8)
Q587, 579
AUDIO LINE L/R MUTE
(B-8)(B-8)
Q586, 580
AUDIO LINE L/R
MUTE SWITCH
(D-10)(D-11)(D-11)
Q591, 592, 593
MUTE
(TRV81)
Q592
2SC4919-TL
Q593
2SC4919-TL
Q591
2SC4919-TL
R619
2200
R621
2200
R620
2200
C610
0.01
B
C609
0.1
F
R604 33
R603 33
R605
33
R600
39
R602
39
R601
39
R613
0
R614
0
(TRV81)
(TRV81)
TR910
(E-12)
Q590
MUTE SWITCH
Q590
UN9113-(TXE)(TR910)
UN9113J-(TX).SO(TR710)
POWER_MUTE
LINE_L_OUT
AU_4.9V
LINE_L_IN
LINE_R_IN
(EXCEPT TRV31)
52
TO
VC-177 BOARD(11/14)
(SEE PAGE 4-53)
V_ON
40
TO
VC-177 BOARD(6/14)
(SEE PAGE 4-38)
EVR_4.9V
DR_Y_OUT
DR_C_OUT
DR_V_OUT
COMP_V_IN
EZ_V_OUT
S_Y_IN
S_C_IN
(TRV81)
53
TO
VC-177 BOARD(12/14)
(SEE PAGE 4-57)
XS_JACK_IN
EZ_V_OUT
XV_JACK_IN
XJACK_MONO
(EXCEPT TRV31)
(EXCEPT TRV31)
HP/LINE_R_OUT
REG_GND
CAM_-7.5V
POW_MUTE
56
TO
VC-177 BOARD(14/14)
(SEE PAGE 4-65)
AU_XIN/OUT
31
TO
VC-177 BOARD(5/14)
(SEE PAGE 4-34)
09

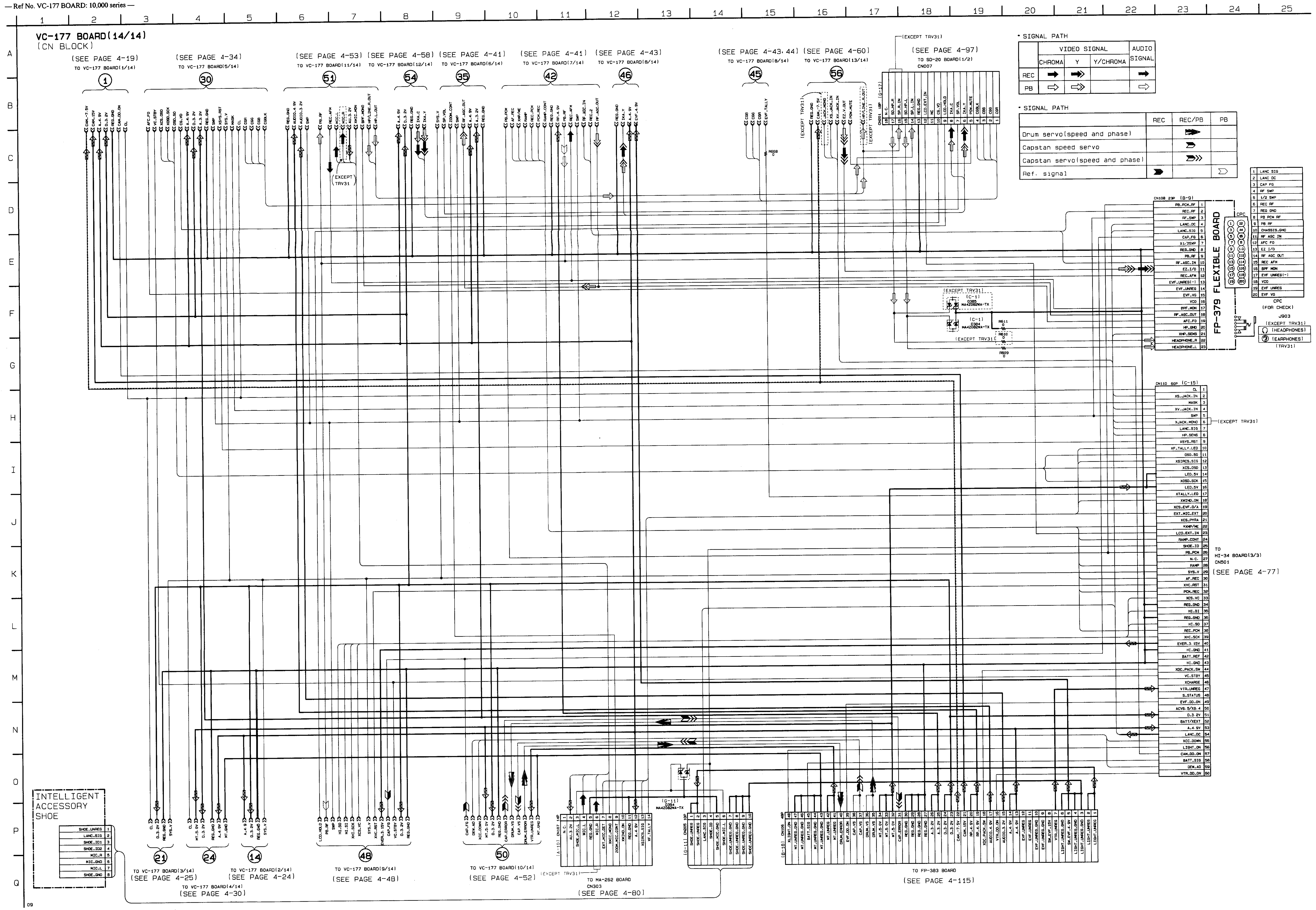
• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡》	➡》》	➡
PB	⇨	⇨》	⇨》》	⇨

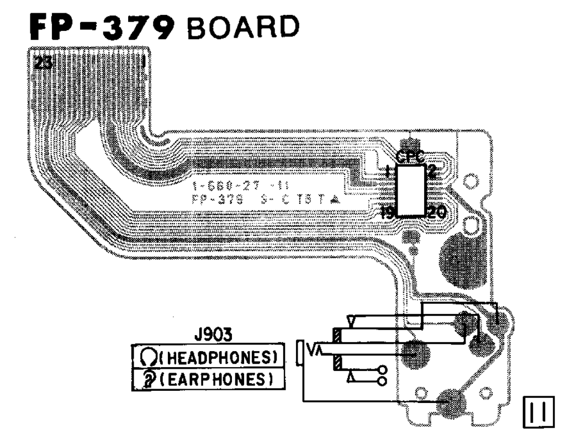
VC-177 (CONNECTOR) SCHEMATIC DIAGRAM

— Ref No. VC-177 BOARD: 10,000 series —

- Refer to page 4-13 for Printed Wiring Board.


VC-177 BOARD(14/14)
[CN BLOCK]
(SEE PAGE 4-19) TO VC-177 BOARD(1/14) ①
(SEE PAGE 4-34) TO VC-177 BOARD(5/14) ㉚
(SEE PAGE 4-53) TO VC-177 BOARD(11/14) (51)
(SEE PAGE 4-58) TO VC-177 BOARD(12/14) (54)
(SEE PAGE 4-41) TO VC-177 BOARD(6/14) ㉟
(SEE PAGE 4-41) TO VC-177 BOARD(7/14) ㊷
(SEE PAGE 4-43) TO VC-177 BOARD(8/14) ㊻
(SEE PAGE 4-43, 44) TO VC-177 BOARD(8/14) ㊺
(SEE PAGE 4-60) TO VC-177 BOARD(13/14) (56)
(SEE PAGE 4-97) TO SD-20 BOARD(1/2) CN007
(EXCEPT TRV31)
• SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
AUDIO SIGNAL
REC
PB
• SIGNAL PATH
REC
REC/PB
PB
Drum servo(speed and phase)
Capstan speed servo
Capstan servo(speed and phase)
Ref. signal
CN108 23P (B-9)
FP-379 FLEXIBLE BOARD
CPC
CPC (FOR CHECK)
J903 (EXCEPT TRV31)
(HEADPHONES)
(EARPHONES)
(TRV31)
CN110 80P (C-15)
TO HI-34 BOARD(3/3) CN501
(SEE PAGE 4-77)
INTELLIGENT ACCESSORY SHOE
TO VC-177 BOARD(3/14) (SEE PAGE 4-25) ㉑
TO VC-177 BOARD(4/14) (SEE PAGE 4-30) ㉔
TO VC-177 BOARD(2/14) (SEE PAGE 4-24) ⑭
TO VC-177 BOARD(9/14) (SEE PAGE 4-48) ㊽
TO VC-177 BOARD(10/14) (SEE PAGE 4-52) ㊿
TO MA-262 BOARD CN303 (SEE PAGE 4-80)
TO FP-383 BOARD (SEE PAGE 4-115)
A B C D E F G H I J K L M N O P Q
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

FP-379 (HEADPHONES) PRINTED WIRING BOARD


FP-379 BOARD
23
1
CPC
1 2
19 20
1-660-27-11
FP-379 S-C TST
J903
(HEADPHONES)
(EARPHONES)
11

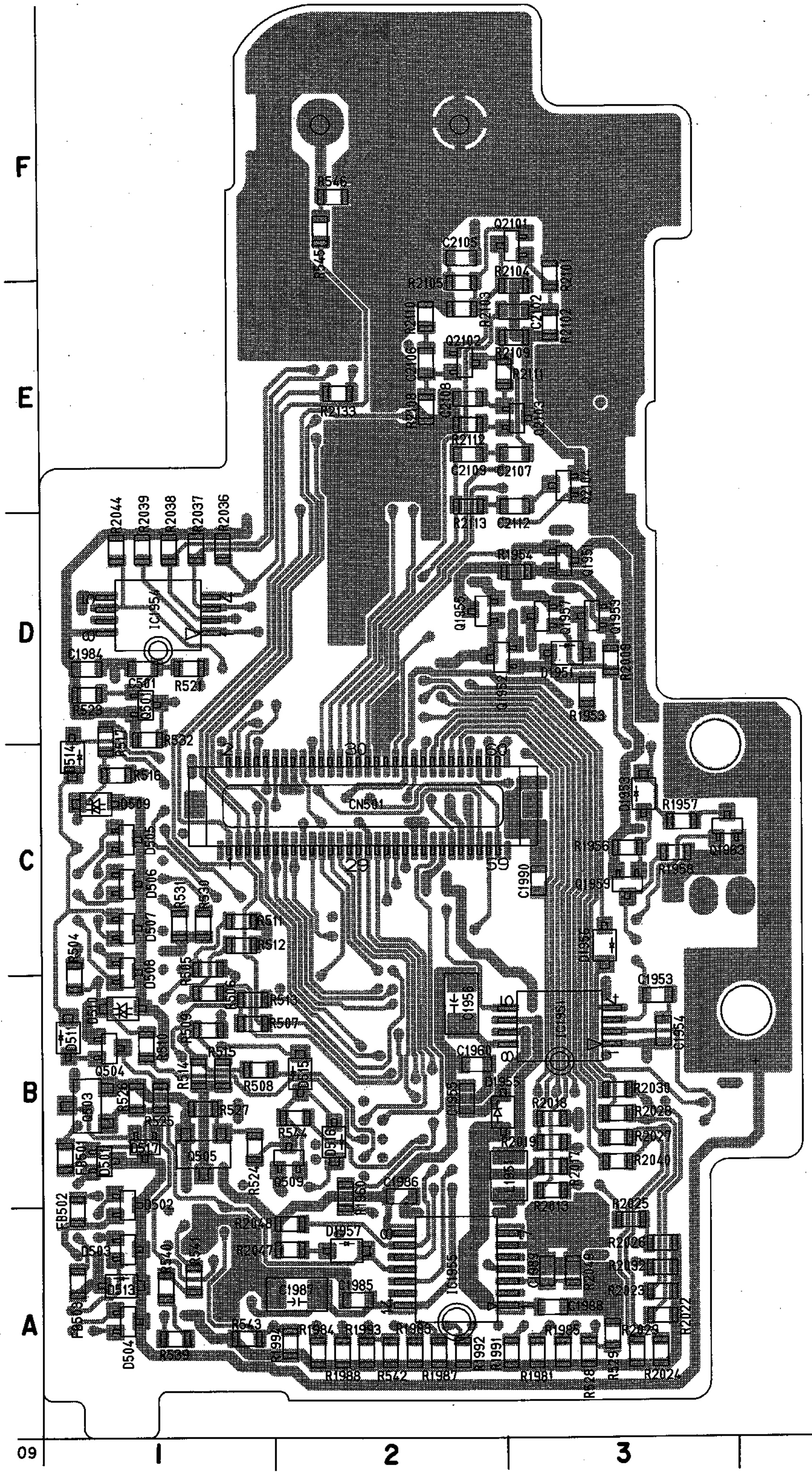
CONNECTOR
VC-177 (14/14)

HI-34 (MODE CONTROL) PRINTED WIRING BOARD

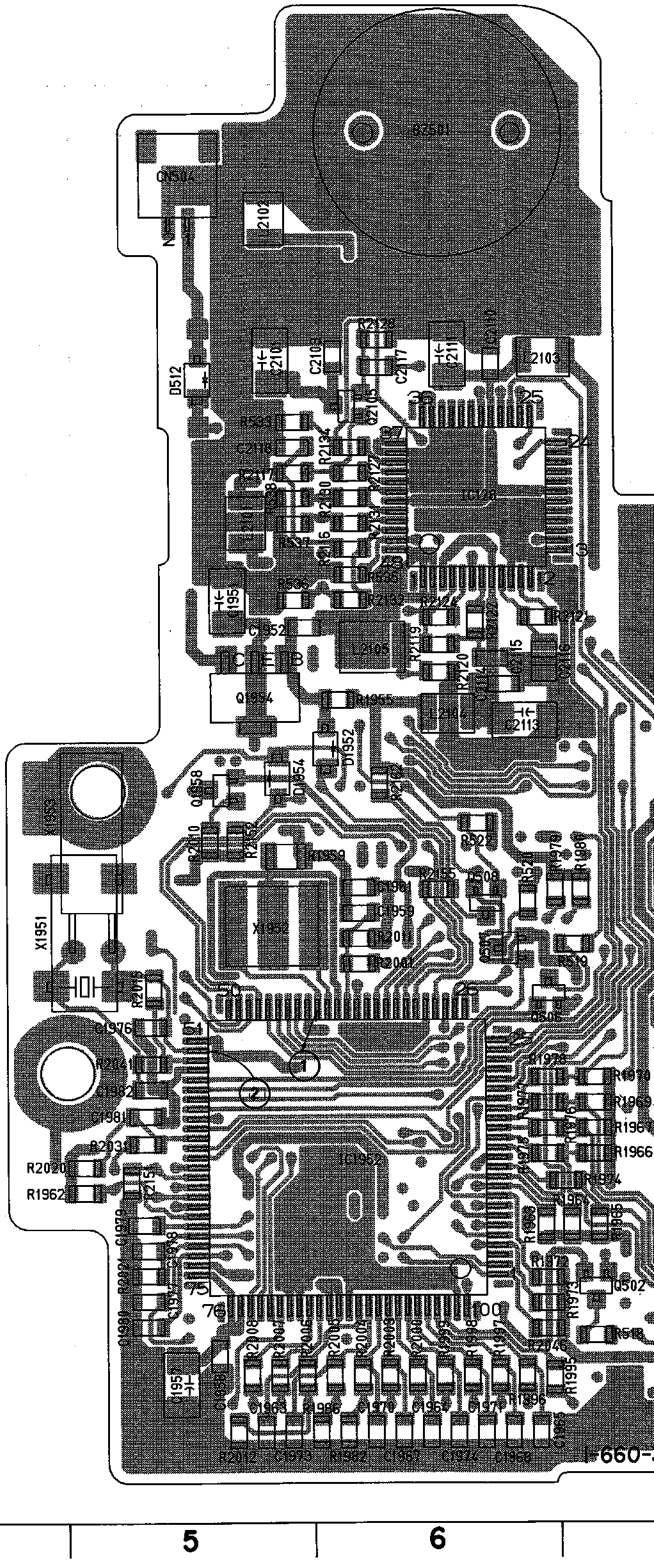
— Ref No. HI-34 BOARD: 20,000 series —

There are few cases that the part isn't mounted in this model is printed on this diagram.

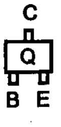
HI-34 BOARD (CONDUCTOR SIDE)


F
E
D
C
B
A
09
1
2
3
4
CN501
IC1951
IC1954
IC1955
R546
Q2101
Q2102
C1984
C1986
C1987

HI-34 BOARD (COMPONENT SIDE)

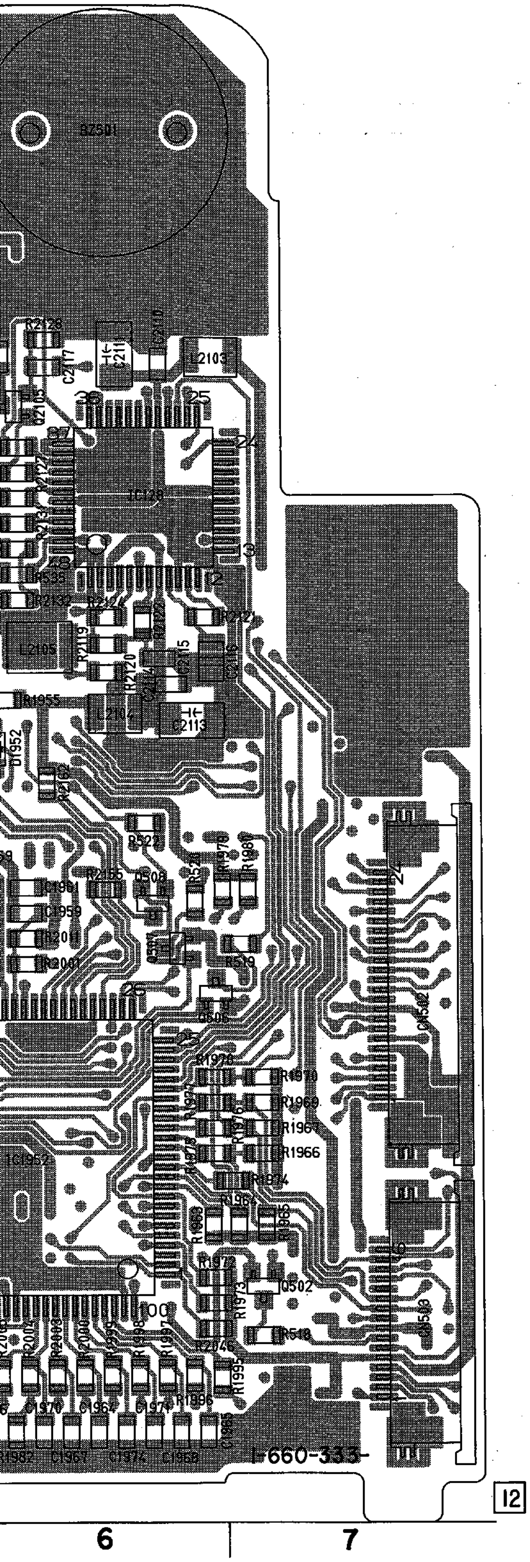

5
6
CN504
BZ501
IC2101
IC1952
X1951
X1952
X1953
Q1954
D512
1-660-

- **For printed wiring boards.**
- This board is a four-layer print board.
  of layers 2 and 3 have not been inclu
- Chip transistor



el is

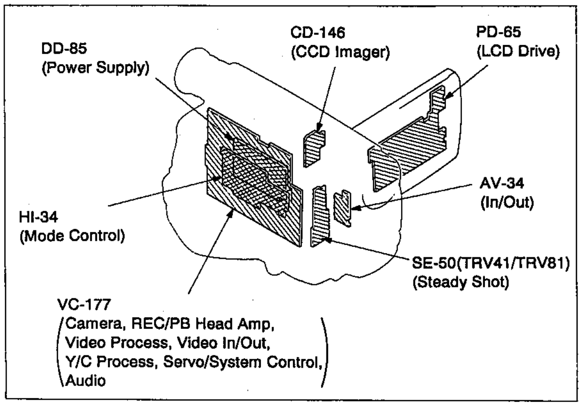
COMPONENT SIDE)



BZ501
IC128
IC1952
1-660-333-
12
6
7

HI-34 BOARD

C501	D-1
C1951	D-5
C1952	D-5
C1955	B-2
C1956	B-2
C1957	A-5
C1958	A-5
C1959	C-6
C1961	C-6
C1976	C-5
C1977	A-5
C1978	B-5
C1980	A-5
C1981	B-5
C1982	B-5
C1984	D-1
C1986	B-2
C1987	A-2
C1988	A-3
C1989	A-3
C1990	C-3
C2101	E-5
C2102	E-3
C2103	E-6
C2105	F-2
C2106	E-2
C2107	E-3
C2108	E-2
C2109	E-2
C2110	E-6
C2111	E-6
C2112	E-3
C2113	D-6
C2114	D-6
C2115	D-6
C2116	D-6
C2117	E-6
C2118	E-5
CN501	C-2
CN502	C-7
CN503	A-7
CN504	E-5
D501	B-1
D502	B-1
D503	A-1
D504	A-1
D511	B-1
D512	E-5
D513	A-1
D1951	D-3
D1952	D-6
D1953	C-3
D1954	D-5
D1955	B-2
D1956	C-3
D1957	A-2
FB501	B-1
FB502	A-1
FB503	A-1
IC128	E-6
IC1951	B-3
IC1952	B-6
IC1954	D-1
IC1955	A-2
L1951	B-2
L2101	E-5
L2102	E-5
L2103	E-6
L2104	D-6
L2105	D-6
Q501	D-1
Q502	A-7
Q503	B-1
Q504	B-1
Q506	C-6
Q508	C-6
Q1951	D-3
Q1952	D-2
Q1953	D-3
Q1954	D-5
Q1955	D-2
Q1959	C-3
Q1963	C-3
Q2101	F-3
Q2102	E-2
Q2103	E-3
Q2104	E-3
Q2105	E-6
R504	B-1
R505	C-1
R506	B-1
R507	B-1
R508	B-1
R509	B-1
R517	D-1
R518	A-7
R519	C-7
R521	D-1
R522	C-6
R523	D-1
R525	B-1
R526	B-1
R528	A-3
R529	A-3
R530	C-1
R531	C-1
R532	D-1
R533	E-5
R535	D-6
R536	D-5
R537	E-5
R538	E-5
R539	A-1
R540	A-1
R541	A-1
R543	A-1
R1953	D-3
R1954	D-3
R1955	D-6
R1956	C-3
R1957	C-3
R1958	C-3
R1959	C-5
R1960	B-2
R1962	B-5
R1963	B-6
R1964	B-7
R1965	B-7
R1966	B-7
R1967	B-7
R1969	B-7
R1970	B-7
R1972	A-6
R1973	A-6
R1974	B-6
R1975	B-6
R1976	B-6
R1977	B-6
R1978	B-6
R1979	C-6
R1980	C-7
R1981	A-3
R1982	A-6
R1983	A-2
R1984	A-2
R1985	A-3
R1986	A-5
R1987	A-2
R1988	A-2
R1991	A-2
R1992	A-2
R1993	A-2
R1994	A-2
R1995	A-6
R1996	A-6
R1997	A-6
R1998	A-6
R1999	A-6
R2000	A-6
R2001	C-6
R2003	A-6
R2004	A-6
R2005	A-6
R2006	A-5
R2007	A-5
R2008	A-5
R2011	C-6
R2012	A-5
R2013	B-3
R2015	C-5
R2017	B-3
R2018	B-3
R2019	B-3
R2020	B-5
R2021	B-5
R2022	A-3
R2023	A-3
R2024	A-3
R2025	A-3
R2026	A-3
R2027	B-3
R2028	B-3
R2029	A-3
R2030	B-3
R2031	B-5
R2032	A-3
R2036	D-1
R2037	D-1
R2038	D-1
R2039	D-1
R2040	B-3
R2041	B-5
R2044	D-1
R2046	A-6
R2047	A-2
R2048	A-2
R2049	A-3
R2101	F-3
R2102	E-3
R2103	E-2
R2104	E-3
R2105	E-2
R2108	E-2
R2109	E-3
R2110	E-2
R2111	E-3
R2112	E-2
R2113	E-2
R2116	D-6
R2117	E-5
R2119	D-6
R2120	D-6
R2121	D-6
R2122	D-6
R2124	D-6
R2127	E-6
R2128	E-6
R2130	E-6
R2131	E-6
R2132	D-6
R2133	E-2
R2134	E-6
R2151	B-5
R2152	C-5
R2155	C-6
R2162	D-6
X1951	C-5
X1952	C-5



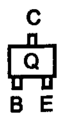
DD-85
(Power Supply)
CD-146
(CCD Imager)
PD-65
(LCD Drive)
AV-34
(In/Out)
HI-34
(Mode Control)
SE-50(TRV41/TRV81)
(Steady Shot)
VC-177
Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio

r printed wiring boards.

is board is a four-layer print board. However, the patterns

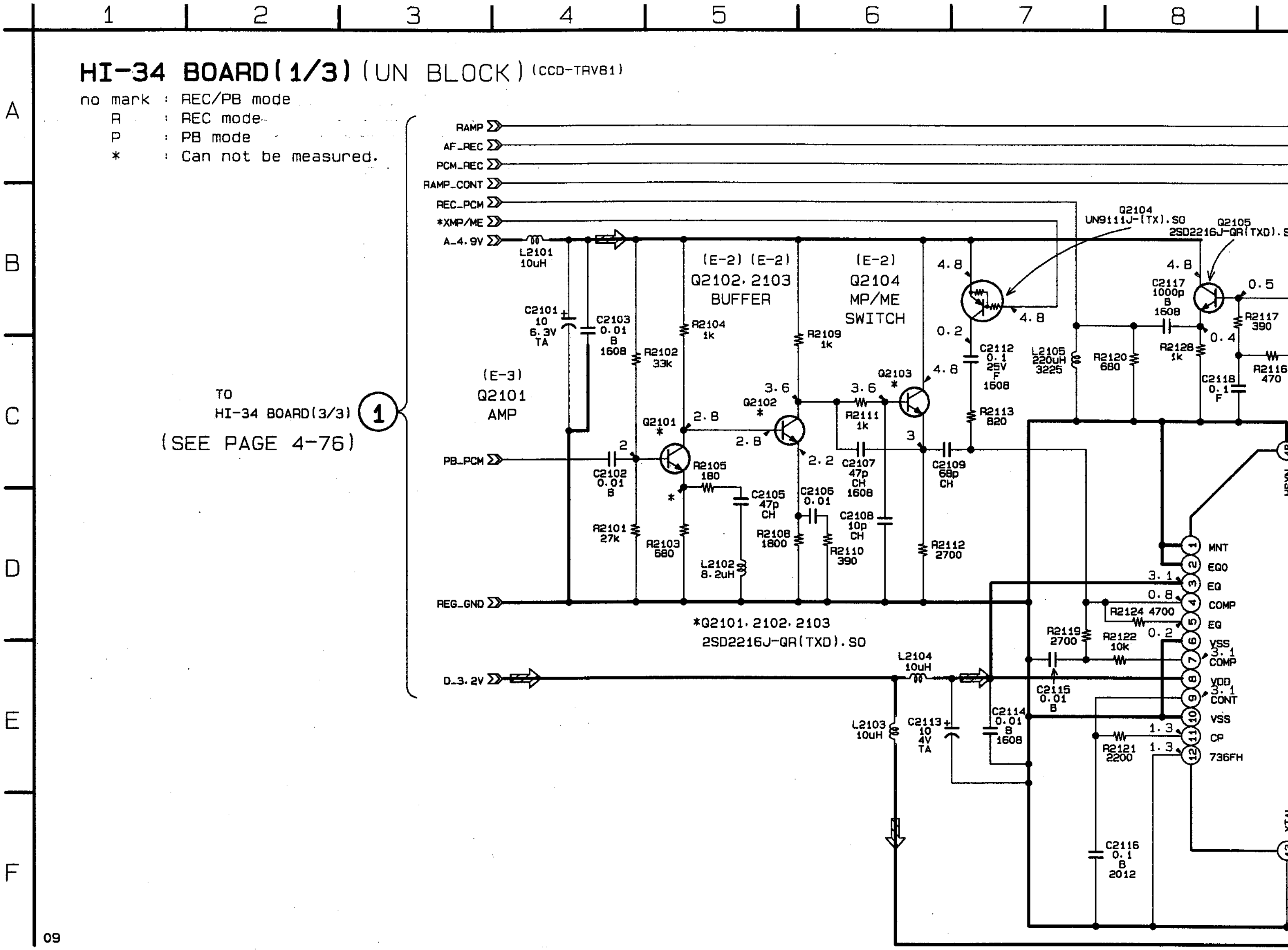
ayers 2 and 3 have not been included in the diagram.

ip transistor



HI-34 (MODE CONTROL (1)) SCHEMATIC DIAGRAM

— Ref No. HI-34 BOARD: 20,000 series —



1
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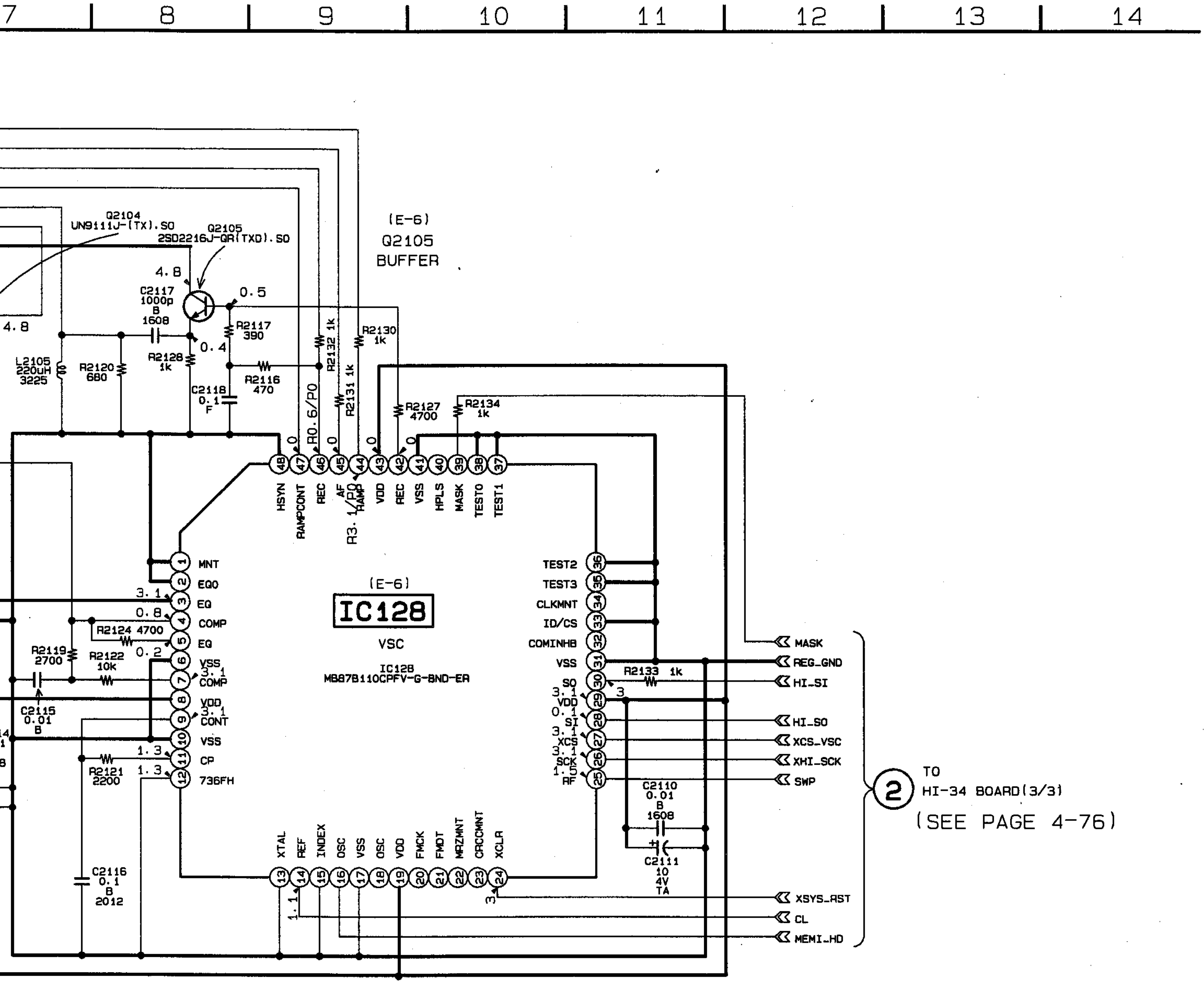
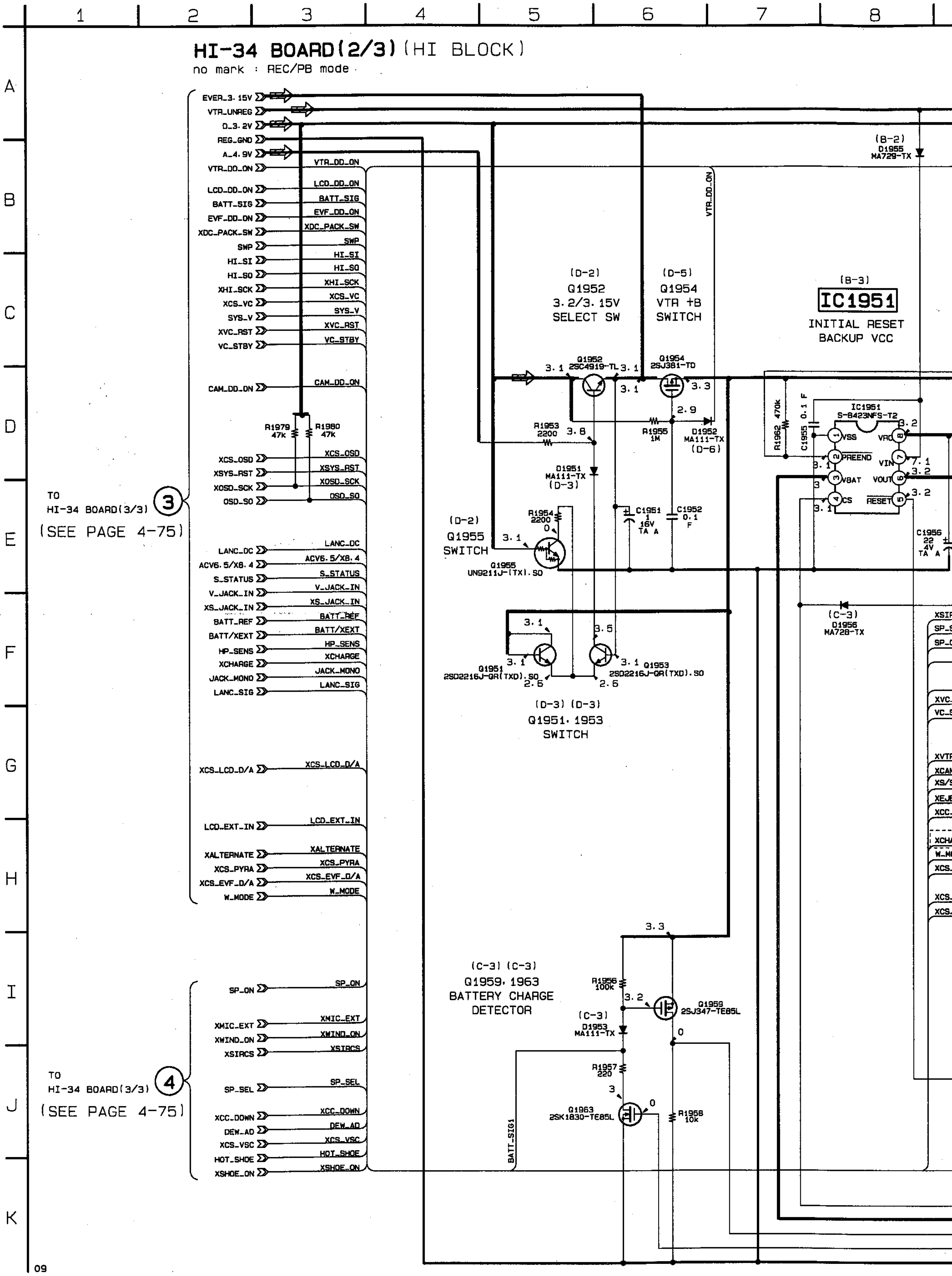
8
A
B
C
D
E
F
HI-34 BOARD(1/3) (UN BLOCK) (CCD-TRV81)
no mark : REC/PB mode
R : REC mode
P : PB mode
* : Can not be measured.
TO HI-34 BOARD(3/3)
1
(SEE PAGE 4-76)
RAMP
AF_REC
PCM_REC
RAMP_CONT
REC_PCM
*XMP/ME
A_4.9V
PB_PCM
REG_GND
D_3.2V
L2101 10uH
C2101 10 6.3V TA
C2103 0.01 B 1608
(E-3) Q2101 AMP
(E-2) (E-2) Q2102, 2103 BUFFER
(E-2) Q2104 MP/ME SWITCH
R2104 1k
R2102 33k
R2109 1k
C2102 0.01 B
R2101 27k
R2103 680
R2105 180
C2105 47p CH
L2102 8.2uH
C2106 0.01
R2108 1800
R2110 390
R2111 1k
C2107 47p CH 1608
C2108 10p CH
C2109 68p CH
R2112 2700
R2113 820
C2112 0.1 25V F 1608
Q2101
Q2102
Q2103
Q2104 UN9111J-(TX).SO
Q2105 2SD2216J-QR(TXD).S
4.8
4.8
4.8
4.8
0.2
3.6
3.6
2.8
2.8
2.2
3
2
0.5
0.4
*Q2101, 2102, 2103 2SD2216J-QR(TXD).SO
L2105 220uH 3225
R2120 680
C2117 1000p B 1608
R2128 1k
R2117 390
R2116 470
C2118 0.1 F
L2104 10uH
L2103 10uH
C2113 10 4V TA
C2114 0.01 B 1608
C2115 0.01 B
R2119 2700
R2122 10k
R2124 4700
R2121 2200
C2116 0.1 B 2012
3.1
0.8
0.2
3.1
3.1
1.3
1.3
1 MNT
2 EQO
3 EQ
4 COMP
5 EQ
6 VSS
7 COMP
8 VDD
9 CONT
10 VSS
11 CP
12 736FH
09


7
8
9
10
11
12
13
14
Q2104
UN9111J-(TX).SO
Q2105
2SD2216J-QR(TXD).SO
(E-6)
Q2105
BUFFER
4.8
0.5
0.4
C2117
1000p
B
1608
R2117
390
R2132 1k
R2130
1k
L2105
220uH
3225
R2120
680
R2128
1k
R2116
470
C2118
0.1
F
R0.6/P0
R2131 1k
R2127
4700
R2134
1k
R3.1/P0
HSYN
RAMPCONT
REC
AF
RAMP
VDD
REC
VSS
HPLS
MASK
TEST0
TEST1
MNT
EQ0
EQ
COMP
EQ
VSS
COMP
VDD
CONT
VSS
CP
736FH
3.1
0.8
0.2
1.3
1.3
R2124 4700
R2119
2700
R2122
10k
C2115
0.01
B
R2121
2200
C2116
0.1
B
2012
(E-6)
IC128
VSC
IC128
MB87B110CPFV-G-BND-ER
TEST2
TEST3
CLKMNT
ID/CS
COMINHB
VSS
SO
VDD
SI
XCS
SCK
RF
R2133 1k
3
C2110
0.01
B
1608
C2111
10
4V
TA
XTAL
REF
INDEX
OSC
VSS
OSC
VDD
FMCK
FMDT
MRZMNT
CRCCMNT
XCLR
1.1
MASK
REG_GND
HI_SI
HI_SO
XCS_VSC
XHI_SCK
SWP
XSYS_RST
CL
MEMI_HD
②
TO
HI-34 BOARD(3/3)
(SEE PAGE 4-76)

HI-34 (MODE CONTROL (2)) SCHEMATIC DIAGRAM

- Refer to page 4–67 for Printed Wiring Board.

— Ref No. HI-34 BOARD: 20,000 series —


1
2
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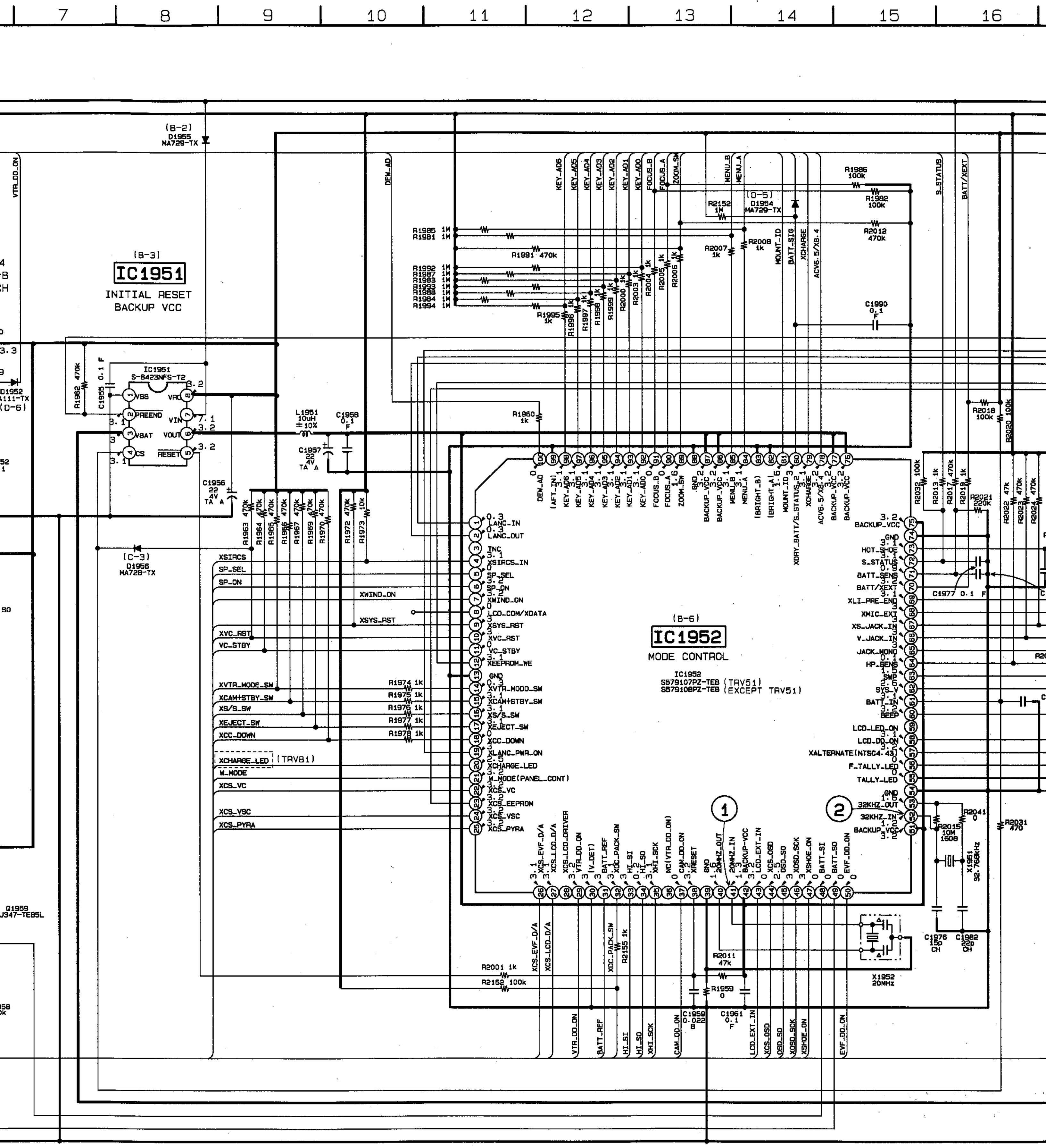
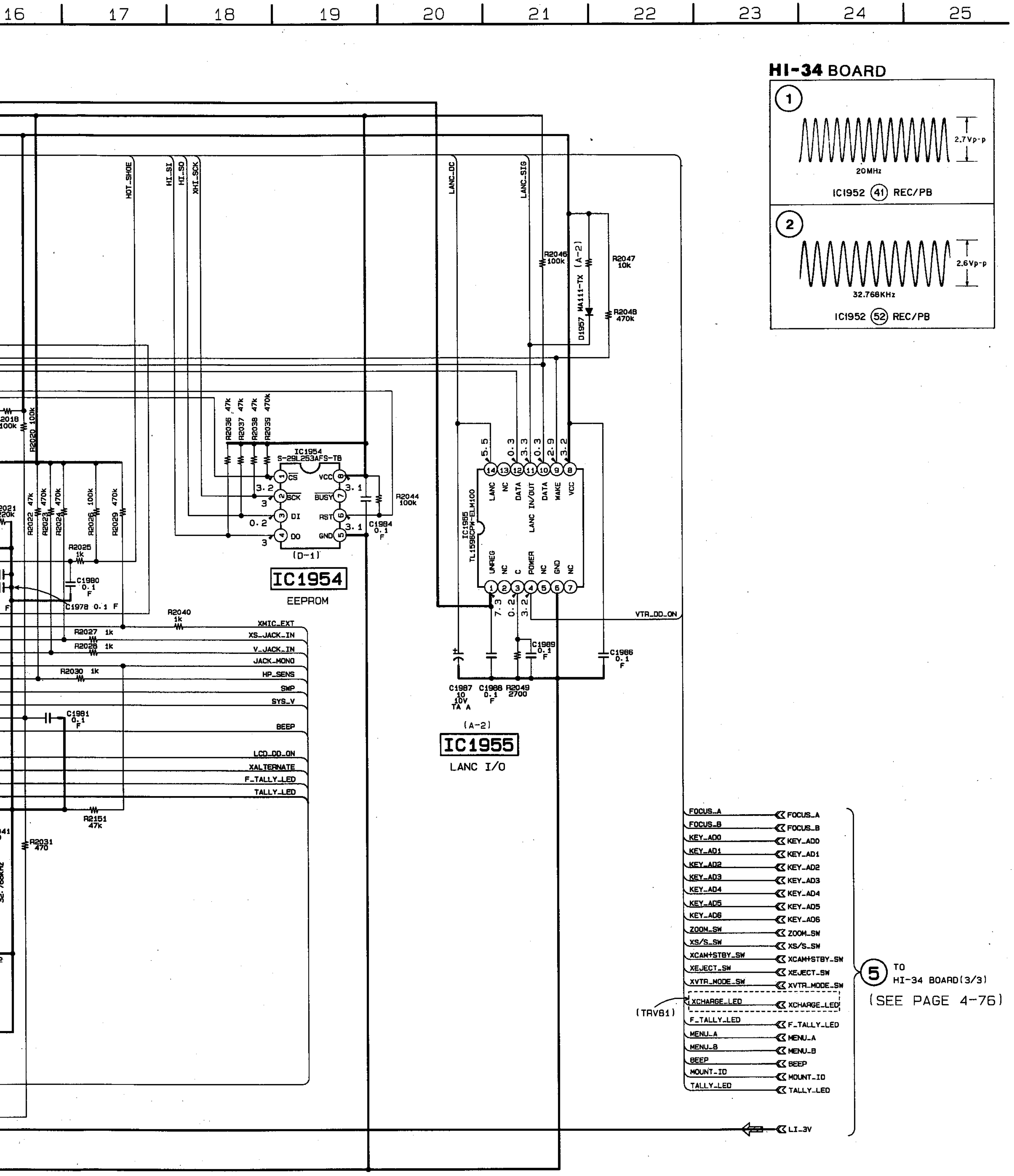
7
8
A
B
C
D
E
F
G
H
I
J
K
HI-34 BOARD(2/3) (HI BLOCK)
no mark : REC/PB mode
EVER_3.15V
VTR_UNREG
D_3.2V
REG_GND
A_4.9V
VTR_DD_ON
LCD_DD_ON
BATT_SIG
EVF_DD_ON
XDC_PACK_SW
SWP
HI_SI
HI_SO
XHI_SCK
XCS_VC
SYS_V
XVC_RST
VC_STBY
CAM_DD_ON
R1979 47k
R1980 47k
XCS_OSD
XSYS_RST
XOSD_SCK
OSD_SO
TO HI-34 BOARD(3/3) ③
(SEE PAGE 4-75)
LANC_DC
ACV6.5/X8.4
S_STATUS
V_JACK_IN
XS_JACK_IN
BATT_REF
BATT/XEXT
HP_SENS
XCHARGE
JACK_MONO
LANC_SIG
XCS_LCD_D/A
LCD_EXT_IN
XALTERNATE
XCS_PYRA
XCS_EVF_D/A
W_MODE
SP_ON
XMIC_EXT
XWIND_ON
XSIRCS
TO HI-34 BOARD(3/3) ④
(SEE PAGE 4-75)
SP_SEL
XCC_DOWN
DEW_AD
XCS_VSC
HOT_SHOE
XSHOE_ON
(D-2) Q1952 3.2/3.15V SELECT SW
(D-5) Q1954 VTR +B SWITCH
Q1952 2SC4919-TL
Q1954 2SJ381-TD
3.1
3.1
3.1
3.3
2.9
3.8
R1953 2200
R1955 1M
D1952 MA111-TX (D-6)
D1951 MA111-TX (D-3)
R1954 2200
0
C1951 1 16V TA A
C1952 0.1 F
(D-2) Q1955 SWITCH
Q1955 UN9211J-(TX).SO
3.1
Q1951 2SD2216J-QR(TXD).SO
Q1953 2SD2216J-QR(TXD).SO
3.1
3.5
3.1
3.1
2.6
2.6
(D-3) (D-3) Q1951, 1953 SWITCH
(B-3) IC1951 INITIAL RESET BACKUP VCC
(B-2) D1955 MA729-TX
IC1951 S-8423NFS-T2
R1962 470k
C1955 0.1 F
VSS
PREEND
VBAT
CS
VRO
VIN
VOUT
RESET
3.2
7.1
3.2
3.2
3.1
3
3.1
C1956 22 4V TA A
(C-3) D1956 MA728-TX
(C-3) (C-3) Q1959, 1963 BATTERY CHARGE DETECTOR
3.3
R1956 100k
3.2
Q1959 2SJ347-TE85L
(C-3) D1963 MA111-TX
0
R1957 220
3
0
Q1963 2SK1830-TE85L
R1958 10k
BATT_SIG1
VTR_DD_ON
09

ed Wiring Board.



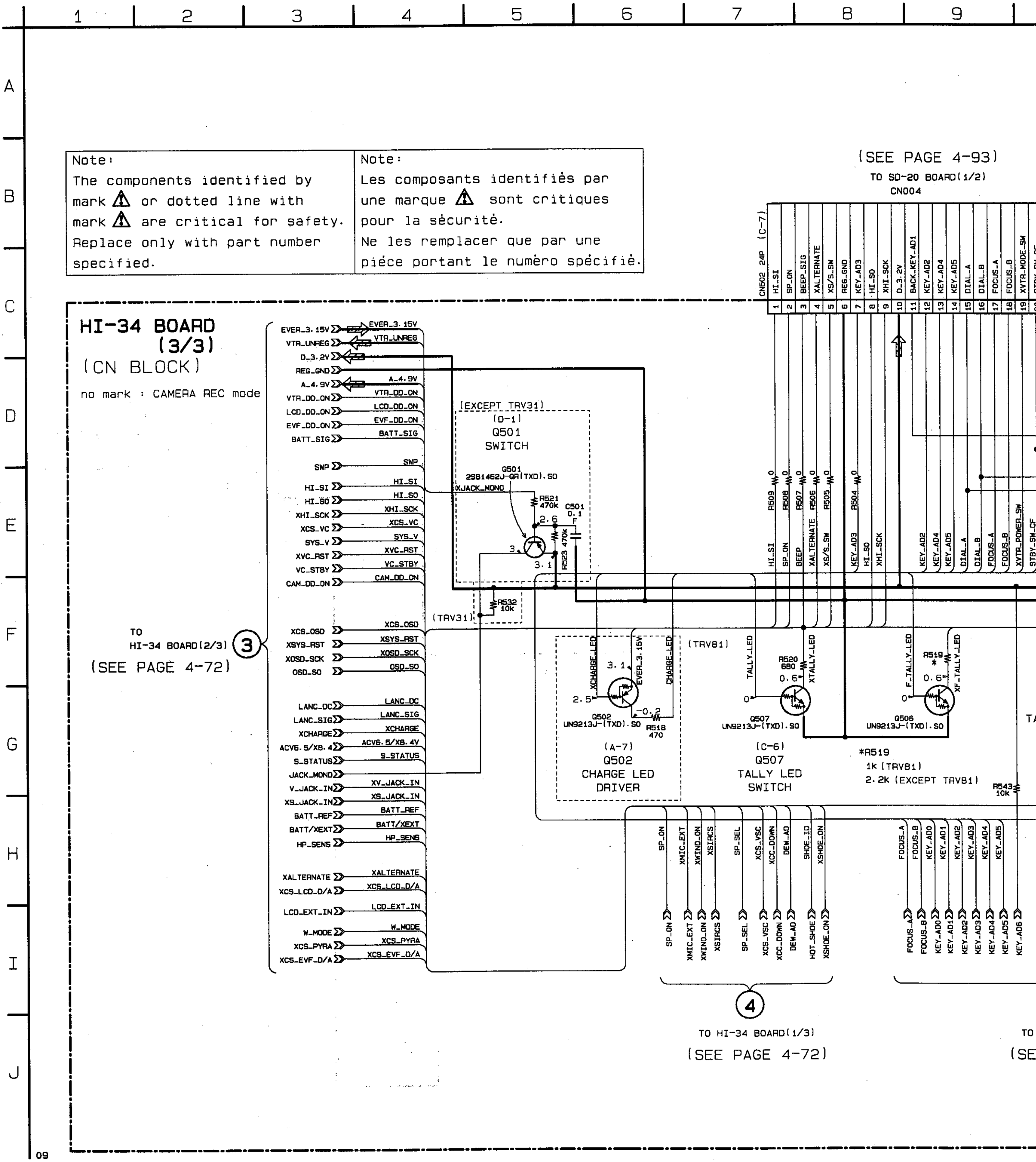
7
8
9
10
11
12
13
14
15
16
(B-3)
IC1951
INITIAL RESET
BACKUP VCC
IC1951
S-8423NFS-T2
VSS
VRO
PREEND
VIN
VBAT
VOUT
CS
RESET
(B-2)
D1955
MA729-TX
D1952
(D-6)
(C-3)
D1956
MA728-TX
L1951
10uH
±10%
C1958
0.1
F
C1957
22
4V
TA
C1956
22
4V
TA
R1962 470k
C1955 0.1 F
R1963 470k
R1964 470k
R1965 470k
R1966 470k
R1967 470k
R1969 470k
R1970 470k
R1972 470k
R1973 10k
R1960 1k
(B-6)
IC1952
MODE CONTROL
IC1952
S579107PZ-TEB (TRV51)
S579108PZ-TEB (EXCEPT TRV51)
XSIRCS
SP_SEL
SP_ON
XWIND_ON
XSYS_RST
XVC_RST
VC_STBY
XVTR_MODE_SW
XCAM+STBY_SW
XS/S_SW
XEJECT_SW
XCC_DOWN
XCHARGE_LED
(TRV81)
W_MODE
XCS_VC
XCS_VSC
XCS_PYRA
R1974 1k
R1975 1k
R1976 1k
R1977 1k
R1978 1k
LANC_IN
LANC_OUT
INC
XSIRCS_IN
XWIND_ON
LCD_COM/XDATA
XVC_RST
VC_STBY
XEEPROM_WE
GND
XVTR_MODO_SW
XLANC_PWR_ON
W_MODE(PANEL_CONT)
XCS_EEPROM
DEW_AD
KEY_AD6
KEY_AD5
KEY_AD4
KEY_AD3
KEY_AD2
KEY_AD1
KEY_AD0
FOCUS_B
FOCUS_A
ZOOM_SW
MENU_B
MENU_A
(AFT_IN)
BACKUP_VCC
(BRIGHT_B)
(BRIGHT_A)
MOUNT_ID
XDRY_BATT/S_STATUS_2
XCHARGE
ACV6.5/X6.4
BATT_SIG
S_STATUS
BATT/XEXT
R1985 1M
R1981 1M
R1991 470k
R1992 1M
R1987 1M
R1983 1M
R1993 1M
R1988 1M
R1984 1M
R1994 1M
R1995 1k
R1996 1k
R1997 1k
R1998 1k
R1999 1k
R2000 1k
R2003 1k
R2004 1k
R2005 1k
R2006 1k
R2152 1M
(D-5)
D1954
MA729-TX
R2007 1k
R2008 1k
R1986 100k
R1982 100k
R2012 470k
C1990 0.1 F
HOT_SHOE
S_STATUS
BATT_SENS
BATT/XEXT
XLI_PRE_END
XMIC_EXT
XS_JACK_IN
V_JACK_IN
JACK_MONO
HP_SENS
SWP
SYS_V
BATT_IN
BEEP
LCD_LED_ON
LCD_DD_ON
XALTERNATE(NTSC4.43)
F_TALLY_LED
TALLY_LED
32KHZ_OUT
32KHZ_IN
R2018 100k
R2020 100k
R2032 100k
R2013 1k
R2017 470k
R2019 1k
R2021 220k
R2022 47k
R2023 470k
R2024 470k
C1977 0.1 F
R2041 0
R2015 10M 1608
R2031 470
X1951 32.768kHz
C1976 15p CH
C1982 22p CH
X1952 20MHz
R2011 47k
R1959 0
C1959 0.022 B
C1961 0.1 F
R2001 1k
R2152 100k
R2155 1k
XCS_EVF_D/A
XCS_LCD_D/A
XCS_LCD_DRIVER
VTR_DD_ON
(V_DET)
BATT_REF
XDC_PACK_SW
HI_SI
HI_SO
XHI_SCK
NC(VTR_DD_ON)
CAM_DD_ON
XRESET
20MHZ_OUT
20MHZ_IN
LCD_EXT_IN
XCS_OSD
OSD_SO
XOSD_SCK
XSHOE_ON
BATT_SI
BATT_SO
EVF_DD_ON
①
②
Q1959


16
17
18
19
20
21
22
23
24
25
HI-34 BOARD
1
2.7Vp-p
20MHz
IC1952 41 REC/PB
2
2.6Vp-p
32.768KHz
IC1952 52 REC/PB
HOT_SHOE
HI_SI
HI_SO
XHI_SCK
LANC_DC
LANC_SIG
R2046 100k
(A-2)
R2047 10k
D1957 MA111-TX
R2048 470k
R2018 100k
R2020 100k
R2036 47k
R2037 47k
R2038 47k
R2039 470k
IC1954 S-29L253AFS-TB
CS
VCC
SCK
BUSY
DI
RST
DO
GND
3.2
3
0.2
3
3.1
3.1
R2044 100k
C1984 0.1 F
(D-1)
IC1954
EEPROM
R2021 220k
R2022 47k
R2023 470k
R2024 470k
R2026 100k
R2029 470k
R2025 1k
C1980 0.1 F
C1978 0.1 F
R2040 1k
R2027 1k
R2028 1k
R2030 1k
C1981 0.1 F
R2151 47k
R2031 470
XMIC_EXT
XS_JACK_IN
V_JACK_IN
JACK_MONO
HP_SENS
SWP
SYS_V
BEEP
LCD_DD_ON
XALTERNATE
F_TALLY_LED
TALLY_LED
5.5
0.3
3.3
0.3
2.9
3.2
LANC
NC
DATA
LANC IN/OUT
DATA
WAKE
VCC
IC1955 TL1596CPW-ELM100
UNREG
NC
C
POWER
NC
GND
NC
7.3
0.2
3.2
VTR_DD_ON
C1989 0.1 F
C1986 0.1 F
C1987 10 10V TA A
C1988 0.1 F
R2049 2700
(A-2)
IC1955
LANC I/O
FOCUS_A
FOCUS_B
KEY_AD0
KEY_AD1
KEY_AD2
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
ZOOM_SW
XS/S_SW
XCAM+STBY_SW
XEJECT_SW
XVTR_MODE_SW
XCHARGE_LED
(TRV81)
F_TALLY_LED
MENU_A
MENU_B
BEEP
MOUNT_ID
TALLY_LED
LI_3V
5
TO
HI-34 BOARD(3/3)
(SEE PAGE 4-76)

HI-34 (MODE CONTROL (3)), FP-389 (FRONT ZOOM) SCHEMATIC DIAGRAMS • Refer to page 4–67 for Printed Wiring Board.

— Ref No. HI-34 BOARD: 20,000 series —

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


1
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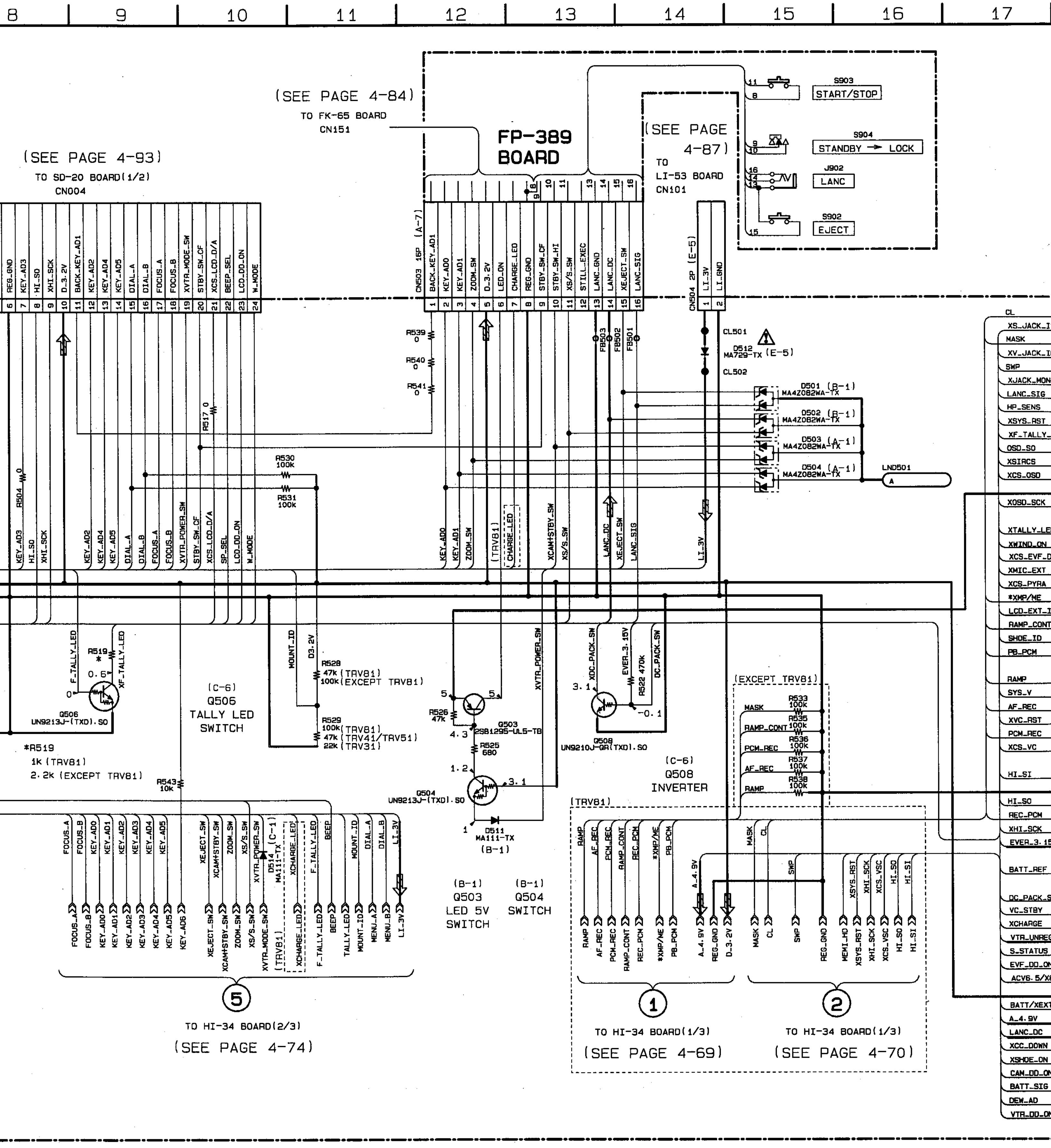
8
9
A
B
C
D
E
F
G
H
I
J
HI-34 BOARD (3/3)
(CN BLOCK)
no mark : CAMERA REC mode
(SEE PAGE 4-93)
TO SD-20 BOARD(1/2)
CN004
CN502 24P (C-7)
HI_SI
SP_ON
BEEP_SIG
XALTERNATE
XS/S_SW
REG_GND
KEY_AD3
HI_SO
XHI_SCK
D_3.2V
BACK_KEY_AD1
KEY_AD2
KEY_AD4
KEY_AD5
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_MODE_SW
EVER_3.15V
VTR_UNREG
D_3.2V
REG_GND
A_4.9V
VTR_DD_ON
LCD_DD_ON
EVF_DD_ON
BATT_SIG
SWP
HI_SI
HI_SO
XHI_SCK
XCS_VC
SYS_V
XVC_RST
VC_STBY
CAM_DD_ON
XCS_OSD
XSYS_RST
XOSD_SCK
OSD_SO
LANC_DC
LANC_SIG
XCHARGE
ACV6.5/X8.4
S_STATUS
JACK_MONO
V_JACK_IN
XV_JACK_IN
XS_JACK_IN
BATT_REF
BATT/XEXT
HP_SENS
XALTERNATE
XCS_LCD_D/A
LCD_EXT_IN
W_MODE
XCS_PYRA
XCS_EVF_D/A
TO
HI-34 BOARD(2/3)
③
(SEE PAGE 4-72)
(EXCEPT TRV31)
(D-1)
Q501
SWITCH
Q501
2SB1462J-QR(TXD).SO
XJACK_MONO
R521
470k
C501
0.1
F
2.6
3
3.1
R523 470k
R532
10k
(TRV31)
R509 0
R508 0
R507 0
R506 0
R505 0
R504 0
HI_SI
SP_ON
BEEP
XALTERNATE
XS/S_SW
KEY_AD3
HI_SO
XHI_SCK
KEY_AD2
KEY_AD4
KEY_AD5
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_POWER_SW
STBY_SW_CF
XCHARGE_LED
EVER_3.15V
CHARGE_LED
3.1
2.5
-0.2
Q502
UN9213J-(TXD).SO
R518
470
(TRV81)
(A-7)
Q502
CHARGE LED
DRIVER
TALLY_LED
R520
680
0.6
XTALLY_LED
0
Q507
UN9213J-(TXD).SO
(C-6)
Q507
TALLY LED
SWITCH
F_TALLY_LED
R519
*
0.6
XF_TALLY_LED
0
Q506
UN9213J-(TXD).SO
*R519
1k (TRV81)
2.2k (EXCEPT TRV81)
R543
10k
SP_ON
XMIC_EXT
XWIND_ON
XSIRCS
SP_SEL
XCS_VSC
XCC_DOWN
DEW_AD
SHOE_ID
XSHOE_ON
HOT_SHOE_ID
FOCUS_A
FOCUS_B
KEY_AD0
KEY_AD1
KEY_AD2
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
④
TO HI-34 BOARD(1/3)
(SEE PAGE 4-72)
09

iring Board.


8
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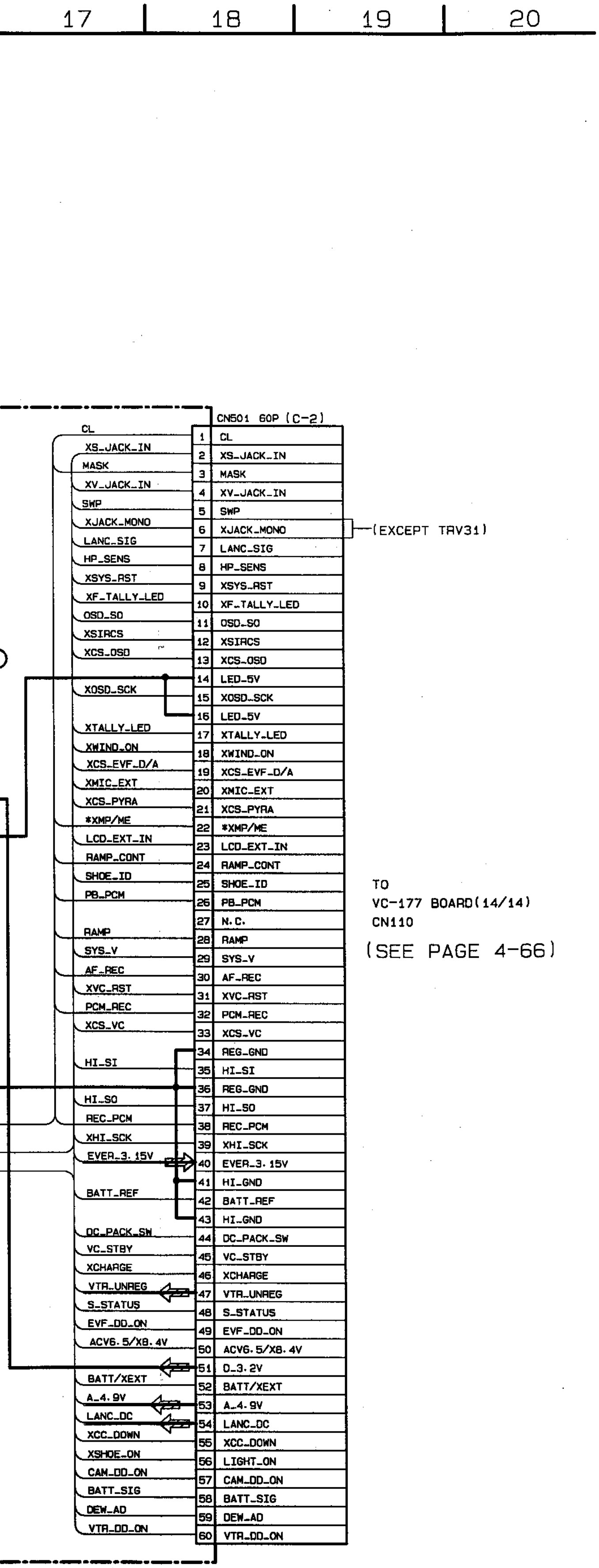
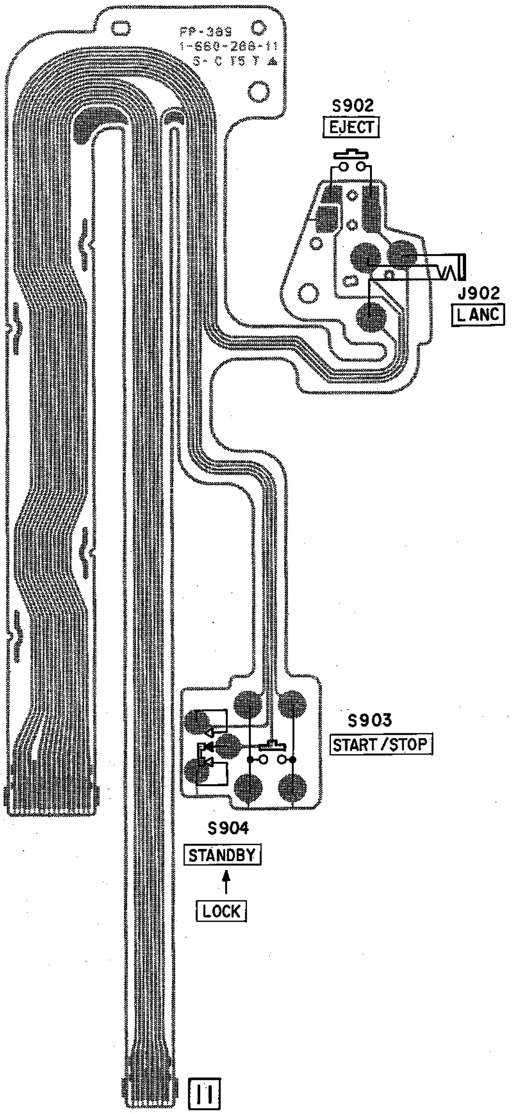
13
14
15
16
17
FP-389 BOARD
(SEE PAGE 4-84)
TO FK-65 BOARD CN151
(SEE PAGE 4-93)
TO SD-20 BOARD(1/2) CN004
(SEE PAGE 4-87)
TO LI-53 BOARD CN101
S903 START/STOP
S904 STANDBY → LOCK
J902 LANC
S902 EJECT
CN503 16P (A-7)
CN504 2P (E-5)
BACK_KEY_AD1
KEY_AD0
KEY_AD1
ZOOM_SW
D_3.2V
LED_ON
CHARGE_LED
REG_GND
STBY_SW_CF
STBY_SW_HI
XS/S_SW
STILL_EXEC
LANC_GND
LANC_DC
XEJECT_SW
LANC_SIG
LI_3V
LI_GND
REG_GND
KEY_AD3
XHI_SO
XHI_SCK
D_3.2V
BACK_KEY_AD1
KEY_AD2
KEY_AD4
KEY_AD5
DIAL_A
DIAL_B
FOCUS_A
FOCUS_B
XVTR_MODE_SW
STBY_SW_CF
XCS_LCD_D/A
BEEP_SEL
LCD_DD_ON
W_MODE
R539 0
R540 0
R541 0
R517 0
R504 0
R530 100k
R531 100k
CL501
D512 MA729-TX (E-5)
CL502
D501 (B-1) MA4Z082WA-TX
D502 (B-1) MA4Z082WA-TX
D503 (A-1) MA4Z082WA-TX
D504 (A-1) MA4Z082WA-TX
LND501
FB503
FB502
FB501
XCAM+STBY_SW
XVTR_POWER_SW
(TRV81)
F_TALLY_LED
XF_TALLY_LED
R519 *
0.6
0
Q506 UN9213J-(TXD).SO
(C-6) Q506 TALLY LED SWITCH
*R519 1k (TRV81) 2.2k (EXCEPT TRV81)
MOUNT_ID
R528 47k (TRV81) 100k (EXCEPT TRV81)
R529 100k (TRV81) 47k (TRV41/TRV51) 22k (TRV31)
R543 10k
R526 47k
Q503 2SB1295-UL5-TB
R525 680
Q504 UN9213J-(TXD).SO
D511 MA111-TX (B-1)
5
4.3
1.2
3.1
1
(B-1) Q503 LED 5V SWITCH
(B-1) Q504 SWITCH
XDC_PACK_SW
EVER_3.15V
R522 470k
DC_PACK_SW
-0.1
Q508 UN9210J-QR(TXD).SO
(C-6) Q508 INVERTER
(EXCEPT TRV81)
MASK
RAMP_CONT
PCM_REC
AF_REC
RAMP
R533 100k
R535 100k
R536 100k
R537 100k
R538 100k
(TRV81)
D514 MA111-TX (C-1)
FOCUS_A
FOCUS_B
KEY_AD0
KEY_AD1
KEY_AD2
KEY_AD3
KEY_AD4
KEY_AD5
KEY_AD6
XEJECT_SW
XCAM+STBY_SW
ZOOM_SW
XS/S_SW
XVTR_MODE_SW
XCHARGE_LED
F_TALLY_LED
BEEP
TALLY_LED
MOUNT_ID
MENU_A
MENU_B
LI_3V
5
TO HI-34 BOARD(2/3)
(SEE PAGE 4-74)
RAMP
AF_REC
PCM_REC
RAMP_CONT
REC_PCM
*XMP/ME
PB_PCM
A_4.9V
REG_GND
D_3.2V
1
TO HI-34 BOARD(1/3)
(SEE PAGE 4-69)
MASK
CL
SWP
REG_GND
MEMI_HD
XSYS_RST
XHI_SCK
XCS_VSC
HI_SO
HI_SI
2
TO HI-34 BOARD(1/3)
(SEE PAGE 4-70)
CL
XS_JACK_I
MASK
XV_JACK_I
SWP
XJACK_MON
LANC_SIG
HP_SENS
XSYS_RST
XF_TALLY_
OSD_SO
XSIRCS
XCS_OSD
XOSD_SCK
XTALLY_LE
XWIND_ON
XCS_EVF_D
XMIC_EXT
XCS_PYRA
*XMP/ME
LCD_EXT_I
RAMP_CONT
SHOE_ID
PB_PCM
RAMP
SYS_V
AF_REC
XVC_RST
PCM_REC
XCS_VC
HI_SI
HI_SO
REC_PCM
XHI_SCK
EVER_3.15
BATT_REF
DC_PACK_S
VC_STBY
XCHARGE
VTR_UNREG
S_STATUS
EVF_DD_ON
ACV6.5/X
BATT/XEXT
A_4.9V
LANC_DC
XCC_DOWN
XSHOE_ON
CAM_DD_ON
BATT_SIG
DEW_AD
VTR_DD_ON

FP-389 (FRONT ZOOM) PRINTED WIRING BOARD


17
18
19
20
CN501 60P (C-2)
CL
XS_JACK_IN
MASK
XV_JACK_IN
SWP
XJACK_MONO
LANC_SIG
HP_SENS
XSYS_RST
XF_TALLY_LED
OSD_SO
XSIRCS
XCS_OSD
XOSD_SCK
XTALLY_LED
XWIND_ON
XCS_EVF_D/A
XMIC_EXT
XCS_PYRA
*XMP/ME
LCD_EXT_IN
RAMP_CONT
SHOE_ID
PB_PCM
RAMP
SYS_V
AF_REC
XVC_RST
PCM_REC
XCS_VC
HI_SI
HI_SO
REC_PCM
XHI_SCK
EVER_3.15V
BATT_REF
DC_PACK_SW
VC_STBY
XCHARGE
VTR_UNREG
S_STATUS
EVF_DD_ON
ACV6.5/X8.4V
BATT/XEXT
A_4.9V
LANC_DC
XCC_DOWN
XSHOE_ON
CAM_DD_ON
BATT_SIG
DEW_AD
VTR_DD_ON
1 CL
2 XS_JACK_IN
3 MASK
4 XV_JACK_IN
5 SWP
6 XJACK_MONO
7 LANC_SIG
8 HP_SENS
9 XSYS_RST
10 XF_TALLY_LED
11 OSD_SO
12 XSIRCS
13 XCS_OSD
14 LED_5V
15 XOSD_SCK
16 LED_5V
17 XTALLY_LED
18 XWIND_ON
19 XCS_EVF_D/A
20 XMIC_EXT
21 XCS_PYRA
22 *XMP/ME
23 LCD_EXT_IN
24 RAMP_CONT
25 SHOE_ID
26 PB_PCM
27 N.C.
28 RAMP
29 SYS_V
30 AF_REC
31 XVC_RST
32 PCM_REC
33 XCS_VC
34 REG_GND
35 HI_SI
36 REG_GND
37 HI_SO
38 REC_PCM
39 XHI_SCK
40 EVER_3.15V
41 HI_GND
42 BATT_REF
43 HI_GND
44 DC_PACK_SW
45 VC_STBY
46 XCHARGE
47 VTR_UNREG
48 S_STATUS
49 EVF_DD_ON
50 ACV6.5/X8.4V
51 D_3.2V
52 BATT/XEXT
53 A_4.9V
54 LANC_DC
55 XCC_DOWN
56 LIGHT_ON
57 CAM_DD_ON
58 BATT_SIG
59 DEW_AD
60 VTR_DD_ON
(EXCEPT TRV31)
TO
VC-177 BOARD(14/14)
CN110
(SEE PAGE 4-66)

FP-389 BOARD


FP-389
1-660-288-11
S902
EJECT
J902
LANC
S903
START/STOP
S904
STANDBY
LOCK
11

MA-262 (AUDIO) PRINTED WIRING BOARD

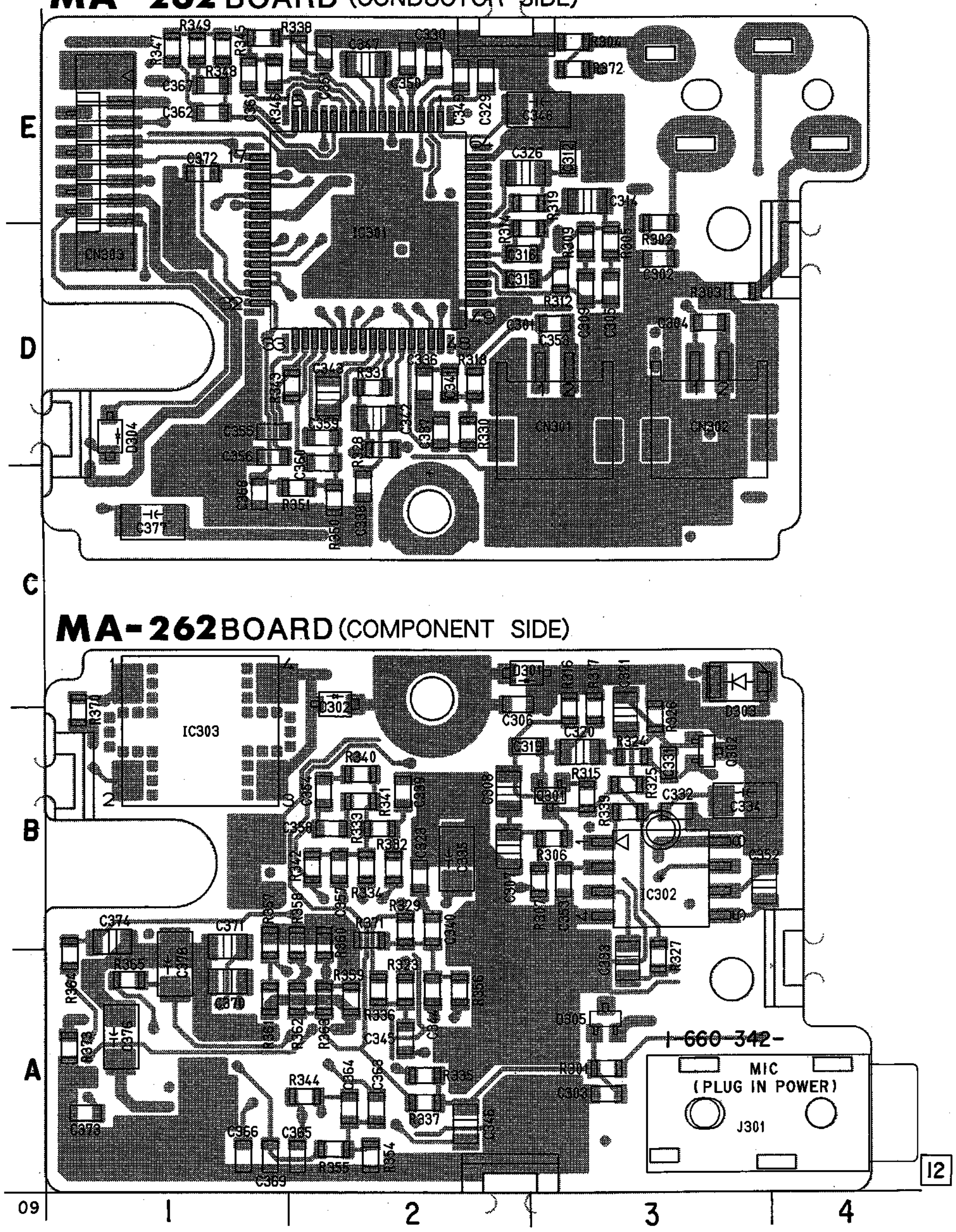
— Ref No. MA-262 BOARD: 4,000 series —

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.

There are few cases that the part isn't mounted in this model is printed on this diagram.

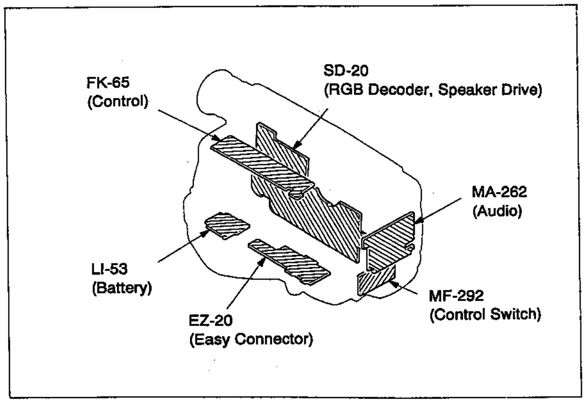
MA-262 BOARD (CONDUCTOR SIDE)

MA-262 BOARD (COMPONENT SIDE)


E
D
C
B
A
09
1
2
3
4
IC301
CN303
CN301
CN302
IC303
MIC
(PLUG IN POWER)
J301
1-660-342-
12

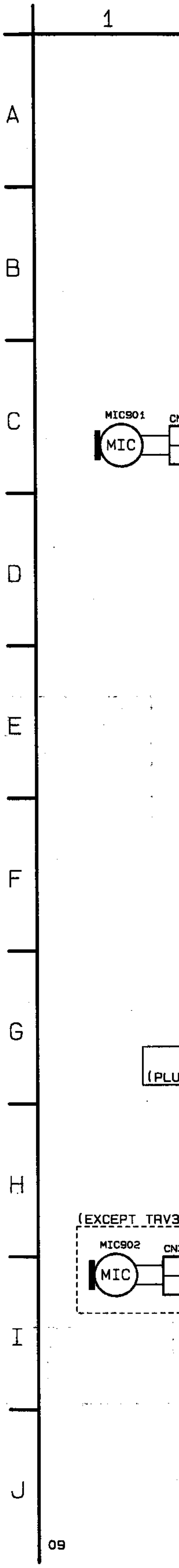
MA-262 BOARD

C302	D-3
C303	A-3
C314	E-3
C315	D-2
C323	B-2
C326	E-3
C329	E-2
C330	E-2
C335	B-2
C336	D-2
C337	D-2
C338	C-2
C339	B-2
C340	B-2
C341	D-2
C342	D-2
C343	D-2
C344	A-2
C345	A-2
C346	A-2
C347	E-2
C348	E-3
C349	E-2
C351	E-2
C354	B-2
C355	D-1
C356	D-1
C357	B-2
C358	B-2
C359	D-2
C360	C-2
C361	E-1
C362	E-1
C363	A-2
C364	A-2
C365	A-2
C366	A-1
C367	E-1
C368	C-1
C369	A-1
C370	A-1
C371	B-1
C372	E-1
C376	A-1
C377	C-1
C378	A-1
CN301	D-3
CN302	D-3
CN303	E-1
D303	C-3
D304	D-1
D305	A-3
IC301	D-2
IC303	B-1
J301	A-3
R301	A-3
R302	D-3
R303	D-3
R304	E-3
R312	D-3
R314	D-2
R318	D-2
R319	E-3
R323	A-2
R328	D-2
R330	D-2
R331	D-2
R332	B-2
R333	B-2
R334	B-2
R335	A-2
R336	A-2
R337	A-2
R338	E-2
R340	B-2
R341	B-2
R342	B-2
R343	D-2
R344	A-2
R345	E-1
R346	E-1
R347	E-1
R348	E-1
R349	E-1
R350	C-2
R351	C-2
R354	A-2
R355	A-2
R356	A-2
R357	B-1
R358	B-2
R362	A-2
R363	A-2
R364	A-1
R365	A-1
R370	B-1
R371	B-2
R373	A-1


FK-65
(Control)
SD-20
(RGB Decoder, Speaker Drive)
MA-262
(Audio)
LI-53
(Battery)
EZ-20
(Easy Connector)
MF-292
(Control Switch)

MA-262 (AUD

— Ref No. MA-26


1
A
B
C
D
E
F
G
H
I
J
MIC901
MIC
(PLU
(EXCEPT TRV3
MIC902
MIC
09

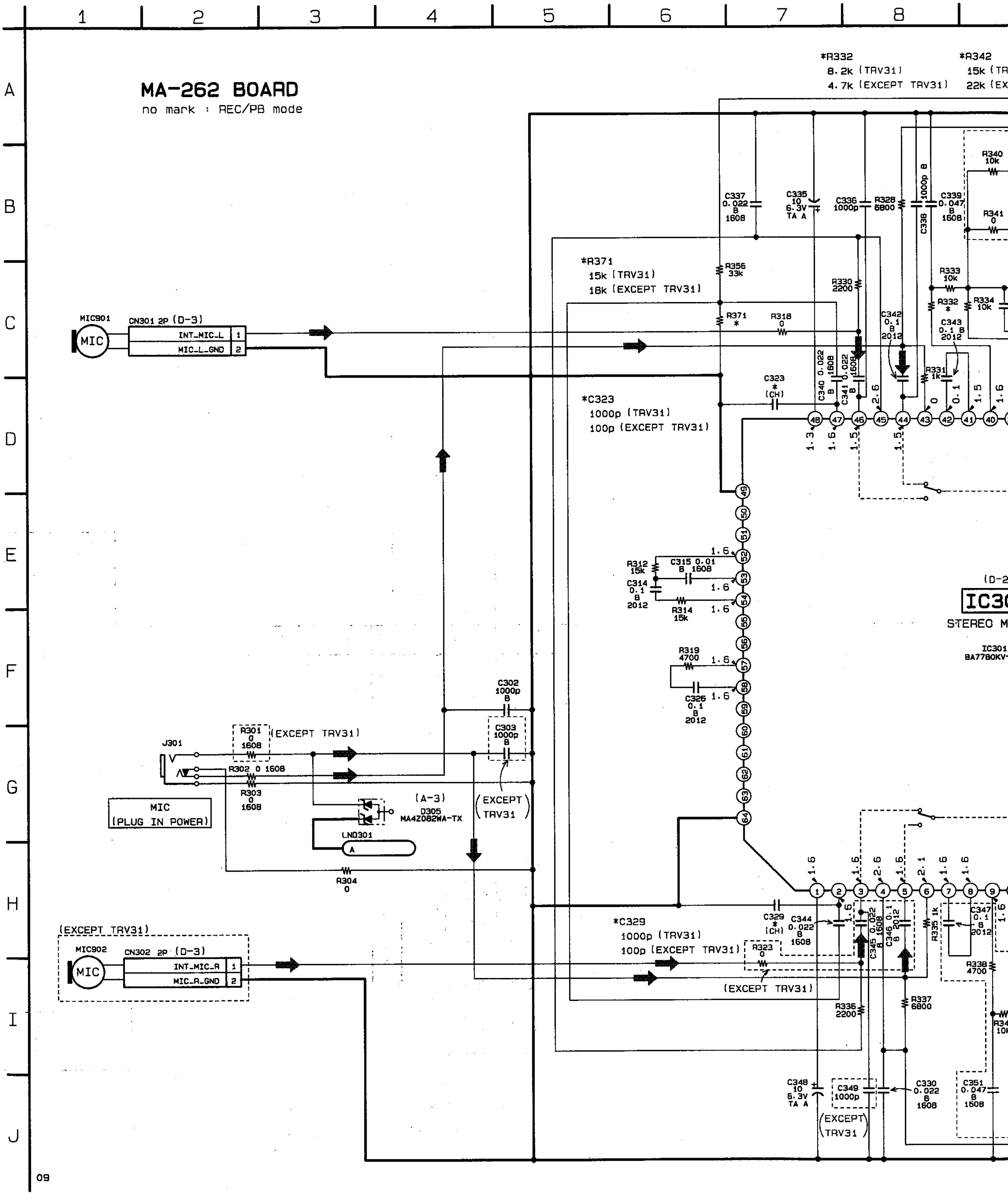
patterns
ram.

del is

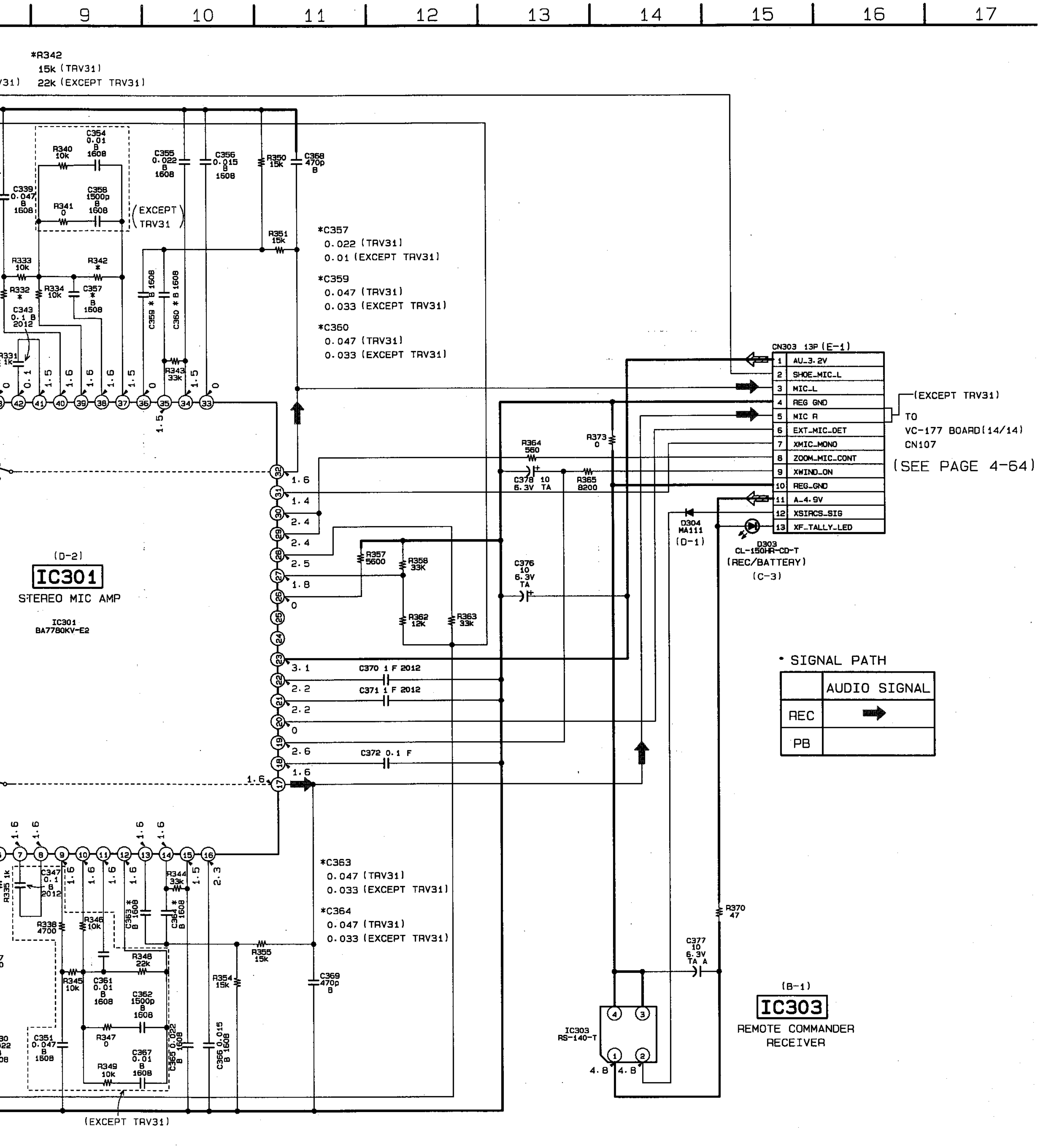
3	B-2
4	B-2
5	A-2
6	A-2
7	A-2
8	E-2
0	B-2
1	B-2
2	B-2
3	D-2
4	A-2
5	E-1
6	E-1
7	E-1
8	E-1
9	E-1
0	C-2
1	C-2
4	A-2
5	A-2
6	A-2
7	B-1
8	B-2
2	A-2
3	A-2
4	A-1
5	A-1
0	B-1
1	B-2
3	A-1

MA-262 (AUDIO) SCHEMATIC DIAGRAM

— Ref No. MA-262 BOARD: 4,000 series —



1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
MA-262 BOARD
no mark : REC/PB mode
*R332
8.2k (TRV31)
4.7k (EXCEPT TRV31)
*R342
15k (TR
22k (EX
C337 0.022 B 1608
C335 10 6.3V TA A
C336 1000p
R328 6800
C338 1000p B
C339 0.047 B 1608
R340 10k
R341 0
*R371
15k (TRV31)
18k (EXCEPT TRV31)
R356 33k
R330 2200
R333 10k
R332 *
R334 10k
R371 *
R318 0
C342 0.1 B 2012
C343 0.1 B 2012
C340 0.022 B 1608
C341 0.022 B 1608
R331 1k
C323 * (CH)
*C323
1000p (TRV31)
100p (EXCEPT TRV31)
MIC901
CN301 2P (D-3)
INT_MIC_L
MIC_L_GND
MIC
R312 15k
C315 0.01 B 1608
C314 0.1 B 2012
R314 15k
R319 4700
C326 0.1 B 2012
(D-2
IC30
STEREO M
IC301
BA7780KV-
C302 1000p B
C303 1000p B
R301 0 1608
(EXCEPT TRV31)
J301
R302 0 1608
R303 0 1608
MIC
(PLUG IN POWER)
(A-3)
D305
MA4Z082WA-TX
(EXCEPT TRV31)
LND301
A
R304 0
(EXCEPT TRV31)
MIC902
CN302 2P (D-3)
INT_MIC_R
MIC_R_GND
*C329
1000p (TRV31)
100p (EXCEPT TRV31)
C329 * (CH)
C344 0.022 B 1608
R323 0
(EXCEPT TRV31)
C345 0.022 B 1608
C346 0.1 B 2012
R335 1k
C347 0.1 B 2012
R338 4700
R336 2200
R337 6800
C348 10 6.3V TA A
C349 1000p
(EXCEPT TRV31)
C330 0.022 B 1608
C351 0.047 B 1608
09



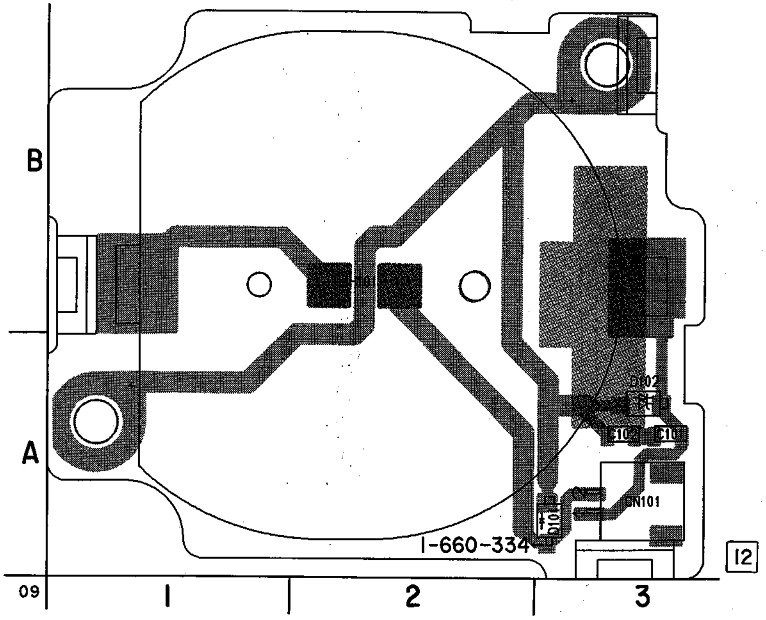
9
10
11
12
13
14
15
16
17
*R342
15k (TRV31)
22k (EXCEPT TRV31)
*C357
0.022 (TRV31)
0.01 (EXCEPT TRV31)
*C359
0.047 (TRV31)
0.033 (EXCEPT TRV31)
*C360
0.047 (TRV31)
0.033 (EXCEPT TRV31)
(EXCEPT TRV31)
(D-2)
IC301
STEREO MIC AMP
IC301
BA7780KV-E2
CN303 13P (E-1)
1 AU_3.2V
2 SHOE_MIC_L
3 MIC_L
4 REG GND
5 MIC R
6 EXT_MIC_DET
7 XMIC_MONO
8 ZOOM_MIC_CONT
9 XWIND_ON
10 REG_GND
11 A_4.9V
12 XSIRCS_SIG
13 XF_TALLY_LED
(EXCEPT TRV31)
TO
VC-177 BOARD (14/14)
CN107
(SEE PAGE 4-64)
D304
MA111
(D-1)
D303
CL-150HR-CD-T
(REC/BATTERY)
(C-3)
• SIGNAL PATH
AUDIO SIGNAL
REC
PB
*C363
0.047 (TRV31)
0.033 (EXCEPT TRV31)
*C364
0.047 (TRV31)
0.033 (EXCEPT TRV31)
(EXCEPT TRV31)
(B-1)
IC303
REMOTE COMMANDER
RECEIVER
IC303
RS-140-T
R340 10k
C354 0.01 B 1608
C355 0.022 B 1608
C356 0.015 B 1608
R350 15k
C368 470p B
C339 0.047 B 1608
C358 1500p B 1608
R341 0
R351 15k
R333 10k
R342 *
R332 *
R334 10k
C357 * B 1608
C343 0.1 B 2012
C359 * B 1608
C360 * B 1608
R343 33k
R364 560
R373 0
C378 10 6.3V TA
R365 8200
R357 5600
R358 33K
C376 10 6.3V TA
R362 12K
R363 33K
C370 1 F 2012
C371 1 F 2012
C372 0.1 F
C347 0.1 B 2012
R344 33k
R338 4700
R346 10k
C363 * B 1608
C364 * B 1608
R348 22k
R355 15k
R345 10k
C361 0.01 B 1608
C362 1500p B 1608
R354 15k
C369 470p B
C351 0.047 B 1608
R347 0
C367 0.01 B 1608
R349 10k
C365 0.022 B 1608
C366 0.015 B 1608
R370 47
C377 10 6.3V TA A
4.8
4.8

LI-53 (BATTERY) PRINTED WIRING BOARD

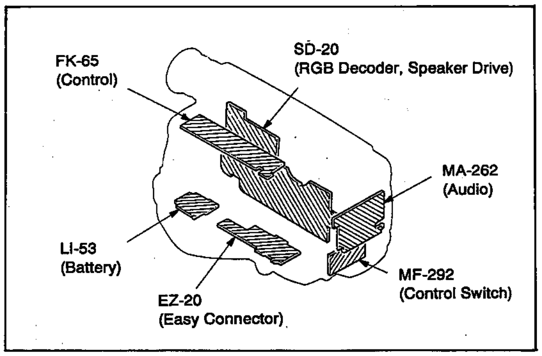
— Ref No. LI-53 BOARD: 3,000 series —

There are few cases that the part isn't mounted in this model is printed on this diagram.

LI-53 BOARD (CONDUCTOR SIDE)


B
A
BH101
D102
C102
C101
CN101
D101
1-660-334
12
09
1
2
3

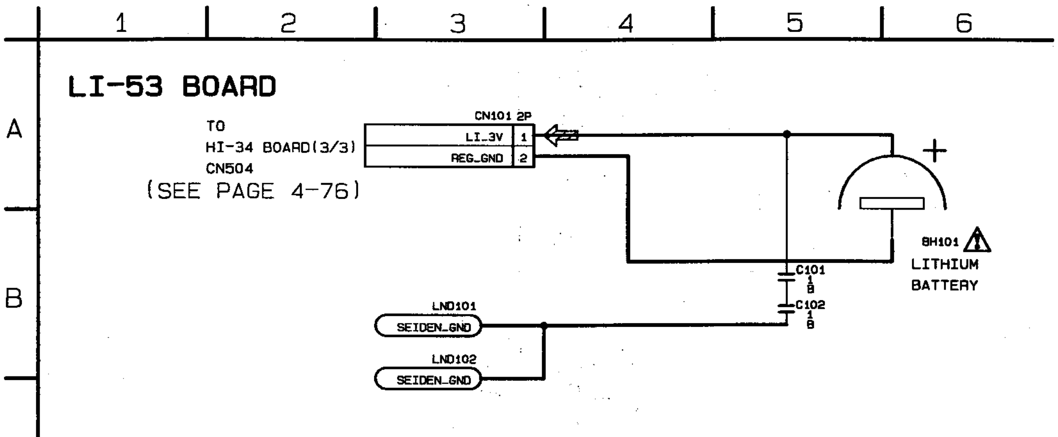
LI-53 BOARD	
BH101	B-2
C101	A-3
C102	A-3
CN101	A-3


FK-65
(Control)
SD-20
(RGB Decoder, Speaker Drive)
MA-262
(Audio)
LI-53
(Battery)
MF-292
(Control Switch)
EZ-20
(Easy Connector)

- ▩ : pattern from the side which enables seeing.
- ▨ : pattern of the rear side.

LI-53 (BATTERY) SCHEMATIC DIAGRAM

— Ref No. LI-53 BOARD: 3,000 series —

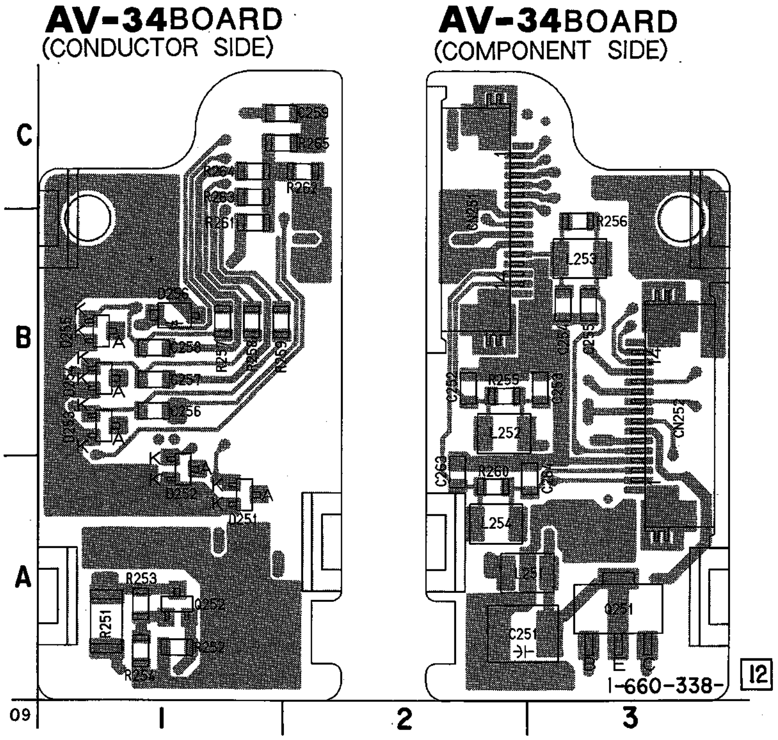

1
2
3
4
5
6
A
B
LI-53 BOARD
TO
HI-34 BOARD(3/3)
CN504
(SEE PAGE 4-76)
CN101 2P
LI_3V 1
REG_GND 2
+
BH101
LITHIUM
BATTERY
C101
1
B
C102
1
B
LND101
SEIDEN_GND
LND102
SEIDEN_GND

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

09

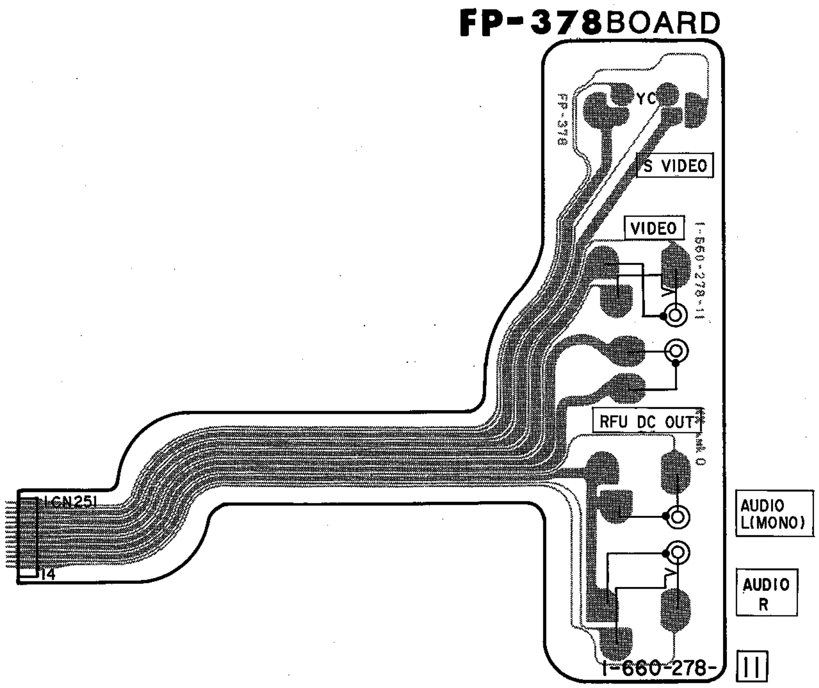
AV-34 (IN/OUT), FP-378 (JACK) PRINTED WIRING BOARDS

— Ref No. AV-34 BOARD: 3,000 series —


AV-34BOARD
(CONDUCTOR SIDE)
AV-34BOARD
(COMPONENT SIDE)
C
B
A
09
1
2
3
C259
R265
R264
R263
R262
R261
D255
D256
D254
D253
R258
R257
R259
R256
D252
D251
R253
Q252
R251
R252
R254
C252
R256
L253
C251
R255
C253
L252
CN252
14
C263
R260
C261
L254
Q251
B E C
1-660-338-
12

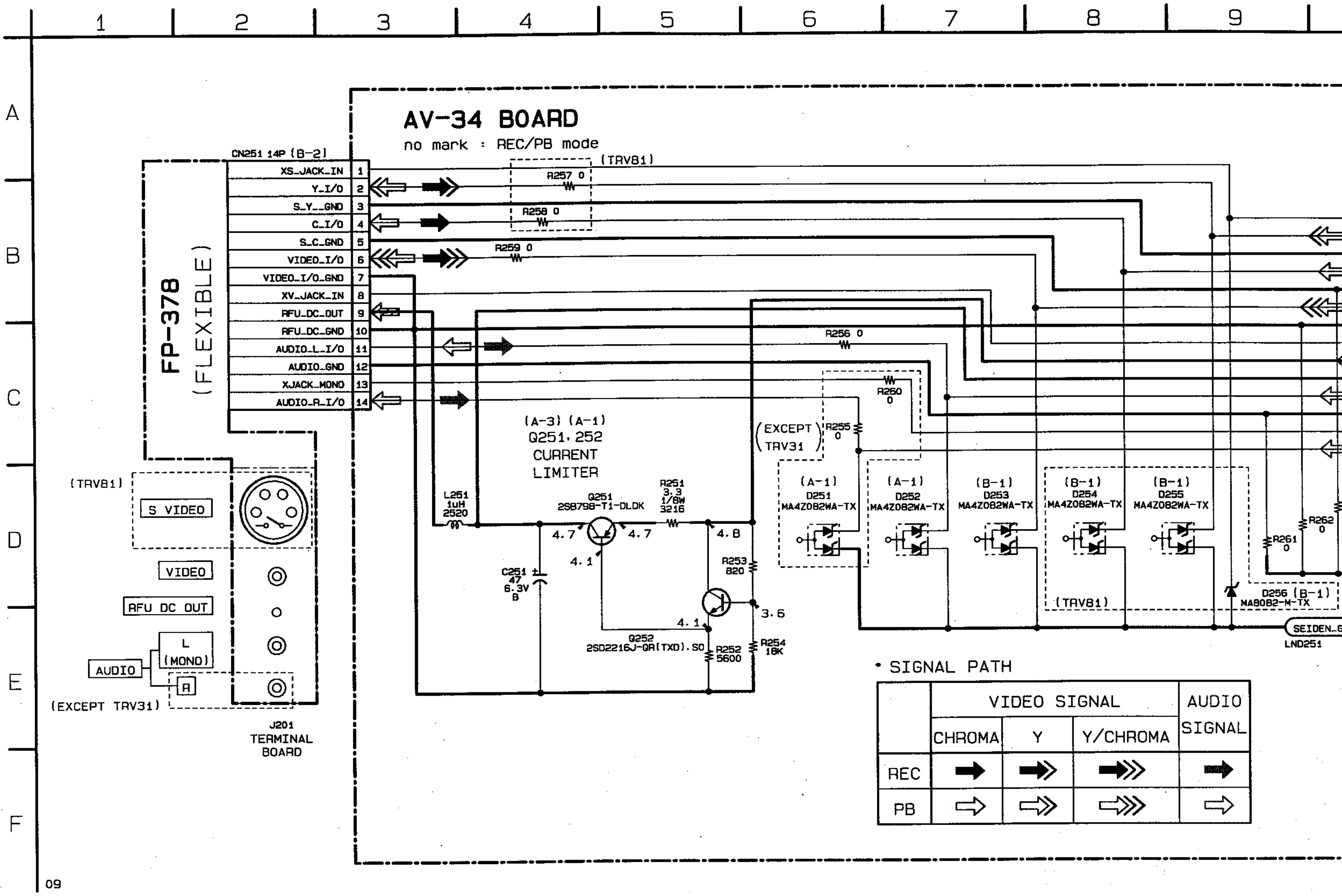
AV-34 BOARD	
C251	A-2
CN251	B-2
CN252	B-3
D251	A-1
D252	A-1
D253	B-1
D254	B-1
D255	B-1
D256	B-1
L251	A-3
Q251	A-3
Q252	A-1
R251	A-1
R252	A-1
R253	A-1
R254	A-1
R255	B-2
R256	B-3
R257	B-1
R258	B-1
R259	B-2
R260	A-2
R261	B-1
R262	C-2
R263	C-1
R264	C-1

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.


FP-378BOARD
FP-378
YC
S VIDEO
VIDEO
V
1-660-278-11
RFU DC OUT
CN251
14
AUDIO
L(MONO)
AUDIO
R
1-660-278-
11

AV-34 (IN/OUT), FP-378 (JACK) SCHEMATIC DIAGRAMS

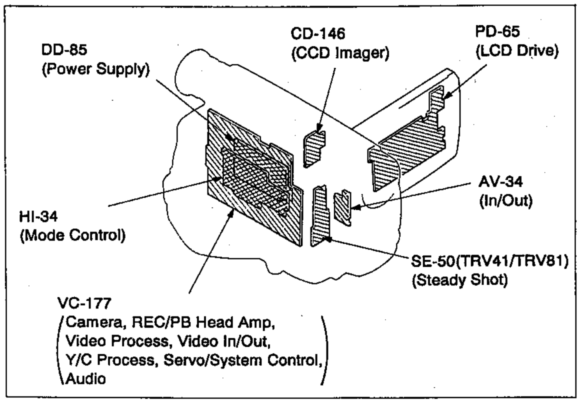
— Ref No. AV-34 BOARD: 3,000 series —



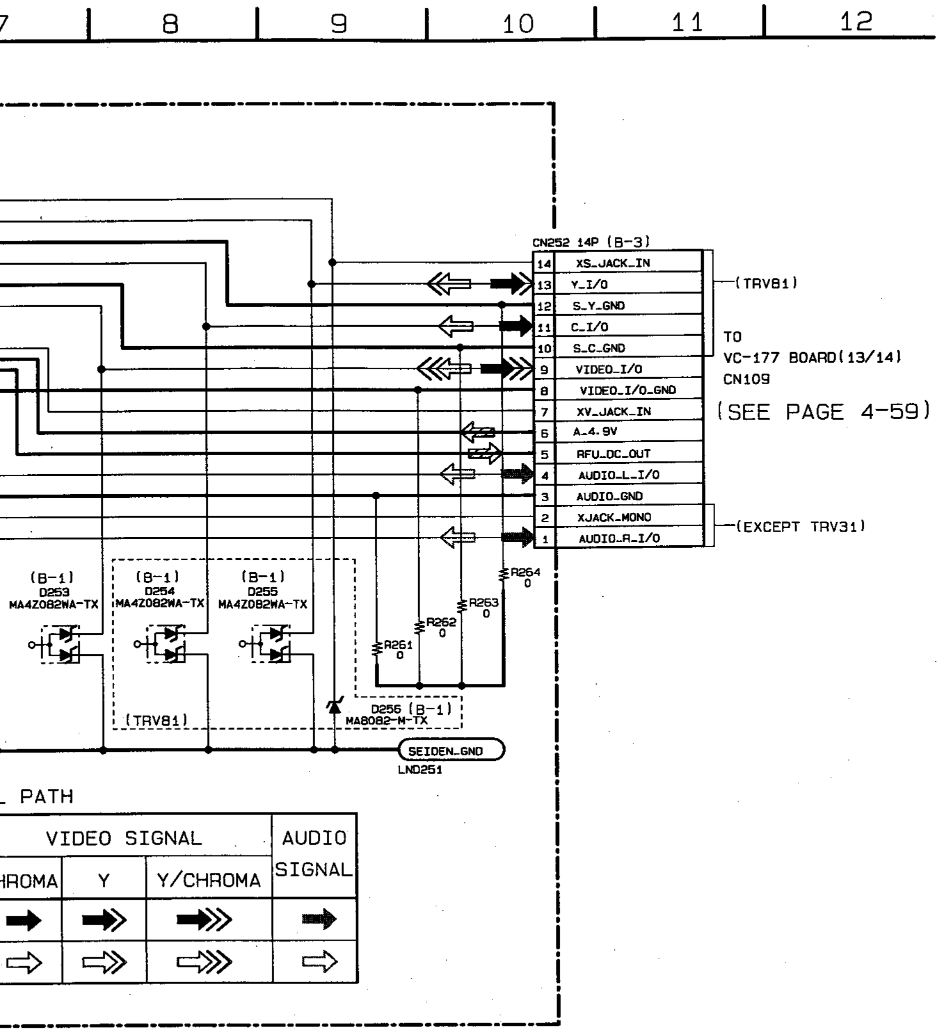
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
AV-34 BOARD
no mark : REC/PB mode
CN251 14P (B-2)
XS_JACK_IN 1
Y_I/O 2
S_Y_GND 3
C_I/O 4
S_C_GND 5
VIDEO_I/O 6
VIDEO_I/O_GND 7
XV_JACK_IN 8
RFU_DC_OUT 9
RFU_DC_GND 10
AUDIO_L_I/O 11
AUDIO_GND 12
XJACK_MONO 13
AUDIO_R_I/O 14
FP-378
(FLEXIBLE)
(TRV81)
R257 0
R258 0
R259 0
R256 0
R260 0
R255 0
(EXCEPT TRV31)
(A-3) (A-1)
Q251, 252
CURRENT
LIMITER
L251 1uH 2520
Q251 2SB798-T1-DLDK
R251 3.3 1/8W 3216
4.7
4.7
4.8
4.1
C251 47 6.3V B
R253 820
3.6
4.1
Q252 2SD2216J-QR(TXD).SO
R252 5600
R254 18K
(A-1) D251 MA4Z082WA-TX
(A-1) D252 MA4Z082WA-TX
(B-1) D253 MA4Z082WA-TX
(B-1) D254 MA4Z082WA-TX
(B-1) D255 MA4Z082WA-TX
(TRV81)
R261 0
R262 0
D256 (B-1) MA8082-M-TX
SEIDEN_G
LND251
(TRV81)
S VIDEO
VIDEO
RFU DC OUT
L (MONO)
AUDIO
R
(EXCEPT TRV31)
J201 TERMINAL BOARD
09

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

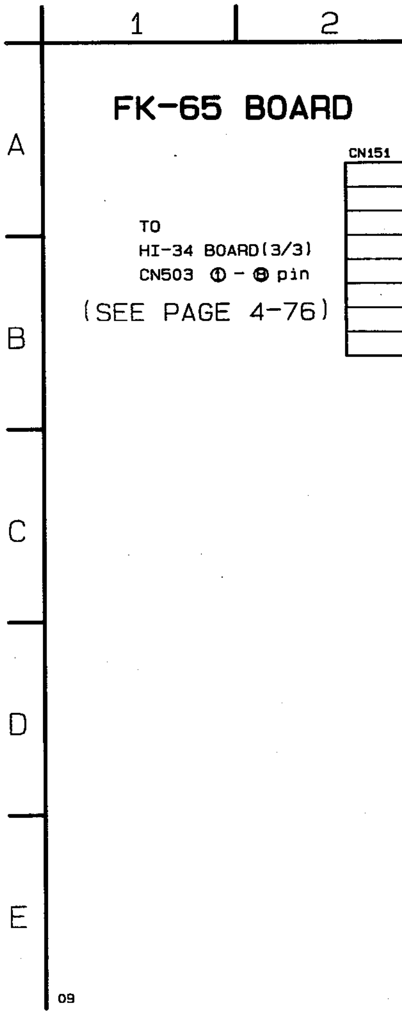


DD-85
(Power Supply)
CD-146
(CCD Imager)
PD-65
(LCD Drive)
AV-34
(In/Out)
HI-34
(Mode Control)
SE-50(TRV41/TRV81)
(Steady Shot)
VC-177
(Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio)


7
8
9
10
11
12
CN252 14P (B-3)
14 XS_JACK_IN
13 Y_I/O
12 S_Y_GND
11 C_I/O
10 S_C_GND
9 VIDEO_I/O
8 VIDEO_I/O_GND
7 XV_JACK_IN
6 A_4.9V
5 RFU_DC_OUT
4 AUDIO_L_I/O
3 AUDIO_GND
2 XJACK_MONO
1 AUDIO_R_I/O
(TRV81)
TO
VC-177 BOARD(13/14)
CN109
(SEE PAGE 4-59)
(EXCEPT TRV31)
(B-1)
D253
MA4Z082WA-TX
(B-1)
D254
MA4Z082WA-TX
(B-1)
D255
MA4Z082WA-TX
(TRV81)
D256 (B-1)
MA8082-M-TX
R261
0
R262
0
R263
0
R264
0
SEIDEN_GND
LND251
L PATH
VIDEO SIGNAL
AUDIO SIGNAL
HROMA
Y
Y/CHROMA

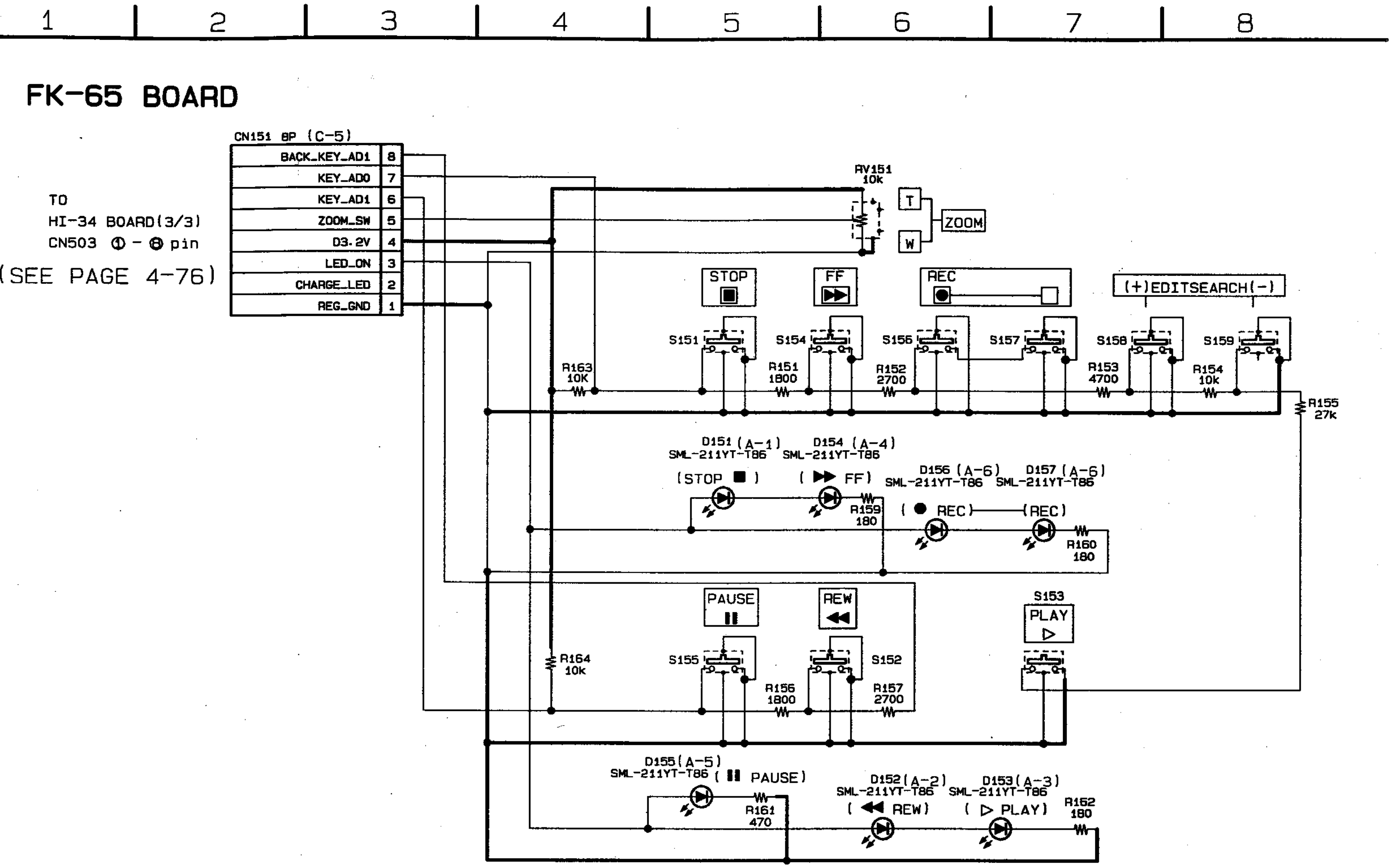
FK-65 (CONTROL) SCHEMATIC DIA

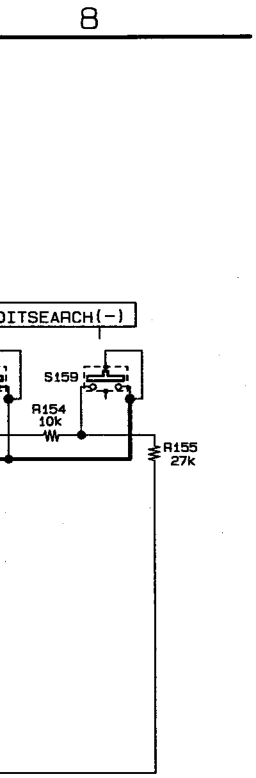
— Ref No. FK-65 BOARD: 3,000 series —


1
2
A
B
C
D
E
FK-65 BOARD
CN151
TO
HI-34 BOARD(3/3)
CN503 ① - ⑧ pin
(SEE PAGE 4-76)
09

(CONTROL) SCHEMATIC DIAGRAM

o. FK-65 BOARD: 3,000 series —

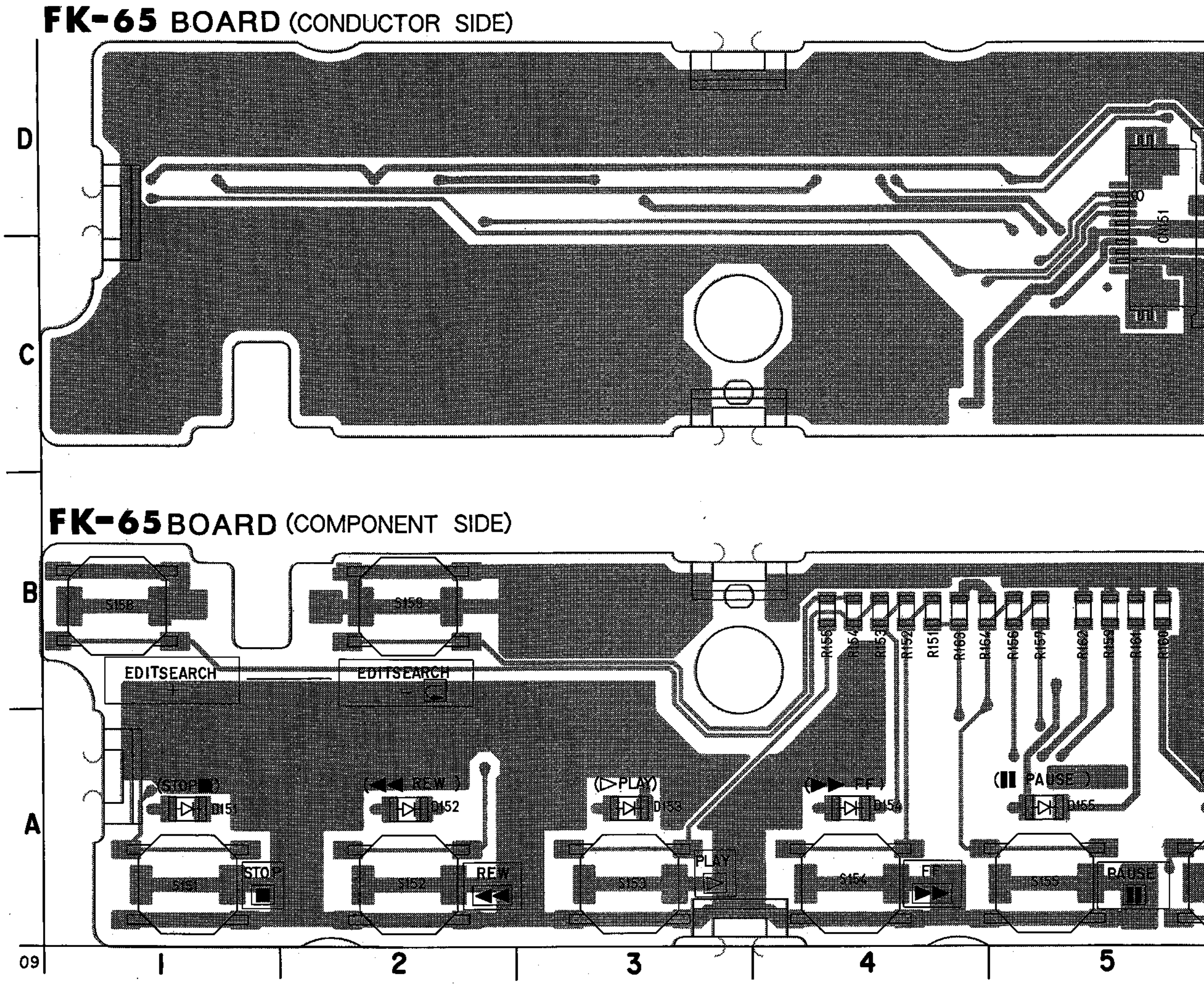

1
2
3
4
5
6
7
8
FK-65 BOARD
CN151 8P (C-5)
BACK_KEY_AD1 8
KEY_AD0 7
KEY_AD1 6
ZOOM_SW 5
D3.2V 4
LED_ON 3
CHARGE_LED 2
REG_GND 1
TO
HI-34 BOARD(3/3)
CN503 ① - ⑧ pin
(SEE PAGE 4-76)
RV151
10k
T
W
ZOOM
STOP
FF
REC
(+)EDITSEARCH(-)
S151
S154
S156
S157
S158
S159
R163
10K
R151
1800
R152
2700
R153
4700
R154
10k
R155
27k
D151 (A-1)
SML-211YT-T86
D154 (A-4)
SML-211YT-T86
(STOP ■)
(▶▶ FF)
D156 (A-6)
SML-211YT-T86
D157 (A-6)
SML-211YT-T86
R159
180
(● REC)
(REC)
R160
180
PAUSE
REW
S153
PLAY
S155
S152
R164
10k
R156
1800
R157
2700
D155(A-5)
SML-211YT-T86
(❚❚ PAUSE)
R161
470
D152(A-2)
SML-211YT-T86
D153(A-3)
SML-211YT-T86
(◀◀ REW)
(▷ PLAY)
R162
180



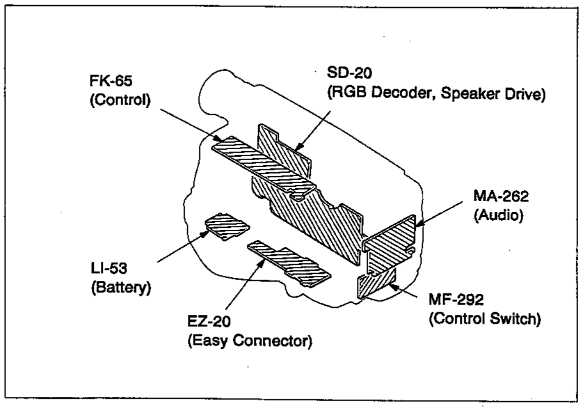
8
EDITSEARCH(-)
S159
R154
10k
R155
27k

FK-65 (CONTROL) PRINTED WIRING BOARD

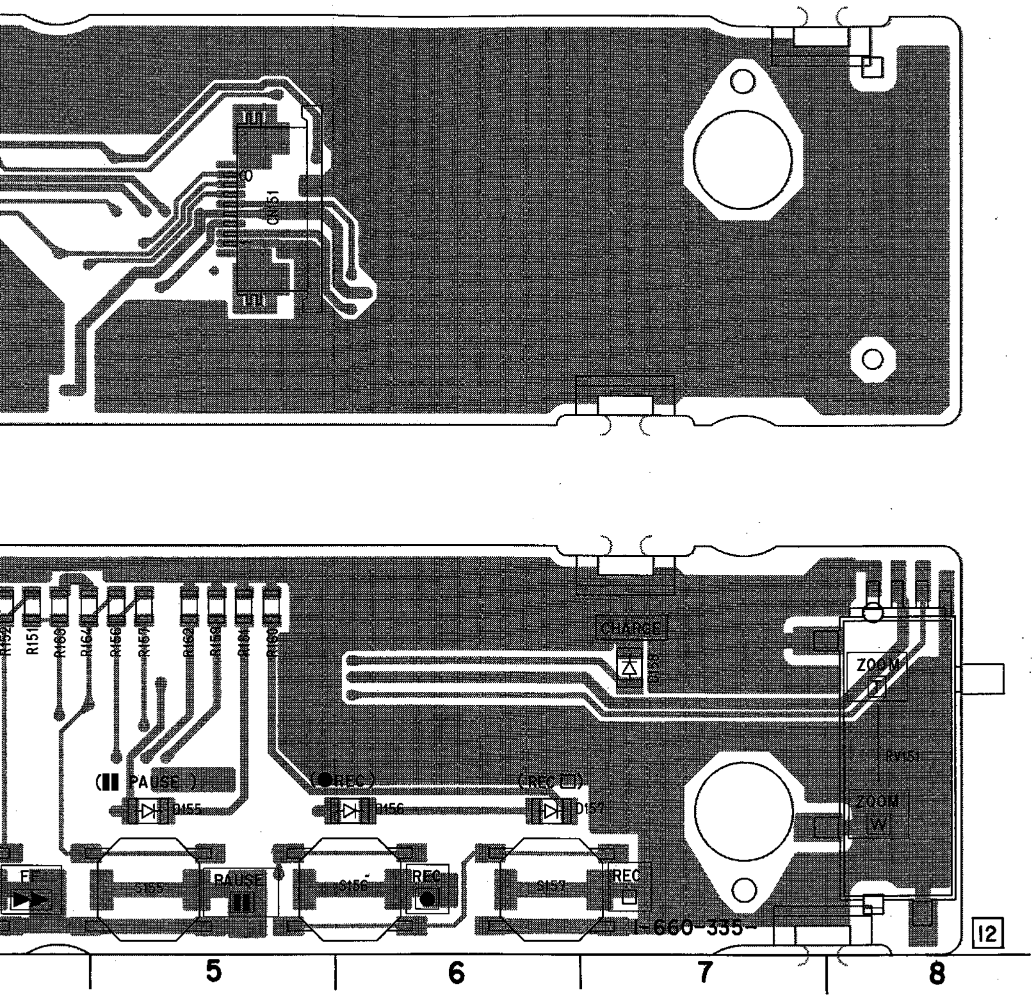
— Ref No. FK-65 BOARD: 3,000 series —



FK-65 BOARD (CONDUCTOR SIDE)
FK-65 BOARD (COMPONENT SIDE)
D
C
B
A
09
1
2
3
4
5
CN151
S158
S159
EDITSEARCH +
EDITSEARCH −
(STOP ■)
D151
(◀◀ REW)
D152
(▷PLAY)
D153
(▶▶ FF)
D154
(❚❚ PAUSE)
D155
S151
S152
S153
S154
S155
STOP
REW
PLAY
FF
PAUSE
R156
R154
R153
R152
R151
R160
R164
R158
R157
R162
R159
R161
R163



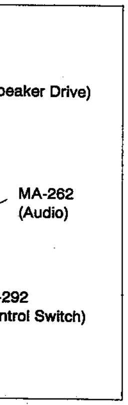
FK-65
(Control)
SD-20
(RGB Decoder, Speaker Drive)
MA-262
(Audio)
LI-53
(Battery)
MF-292
(Control Switch)
EZ-20
(Easy Connector)


CN151
R152
R151
R160
R164
R156
R157
R153
R159
R161
R163
CHARGE
D158
ZOOM
T
RV151
ZOOM
W
(II PAUSE)
(●REC)
(REC □)
D155
D156
D157
FF
S155
PAUSE
S156
REC
S157
REC
1-660-335-
12
5
6
7
8

FK-65 BOARD

CN151	C-5
D151	A-1
D152	A-2
D153	A-3
D154	A-4
D155	A-5
D156	A-6
D157	A-6
R151	B-4
R152	B-4
R153	B-4
R154	B-4
R155	B-4
R156	B-5
R157	B-5
R159	B-5
R160	B-5
R161	B-5
R162	B-5
R163	B-4
R164	B-4
RV151	A-7
S151	A-1
S152	A-2
S153	A-3
S154	A-4
S155	A-5
S156	A-6
S157	A-6
S158	B-1
S159	B-2

There are few cases that the part isn't mounted in this model is printed on this diagram.


peaker Drive)
MA-262
(Audio)
292
ntrol Switch)

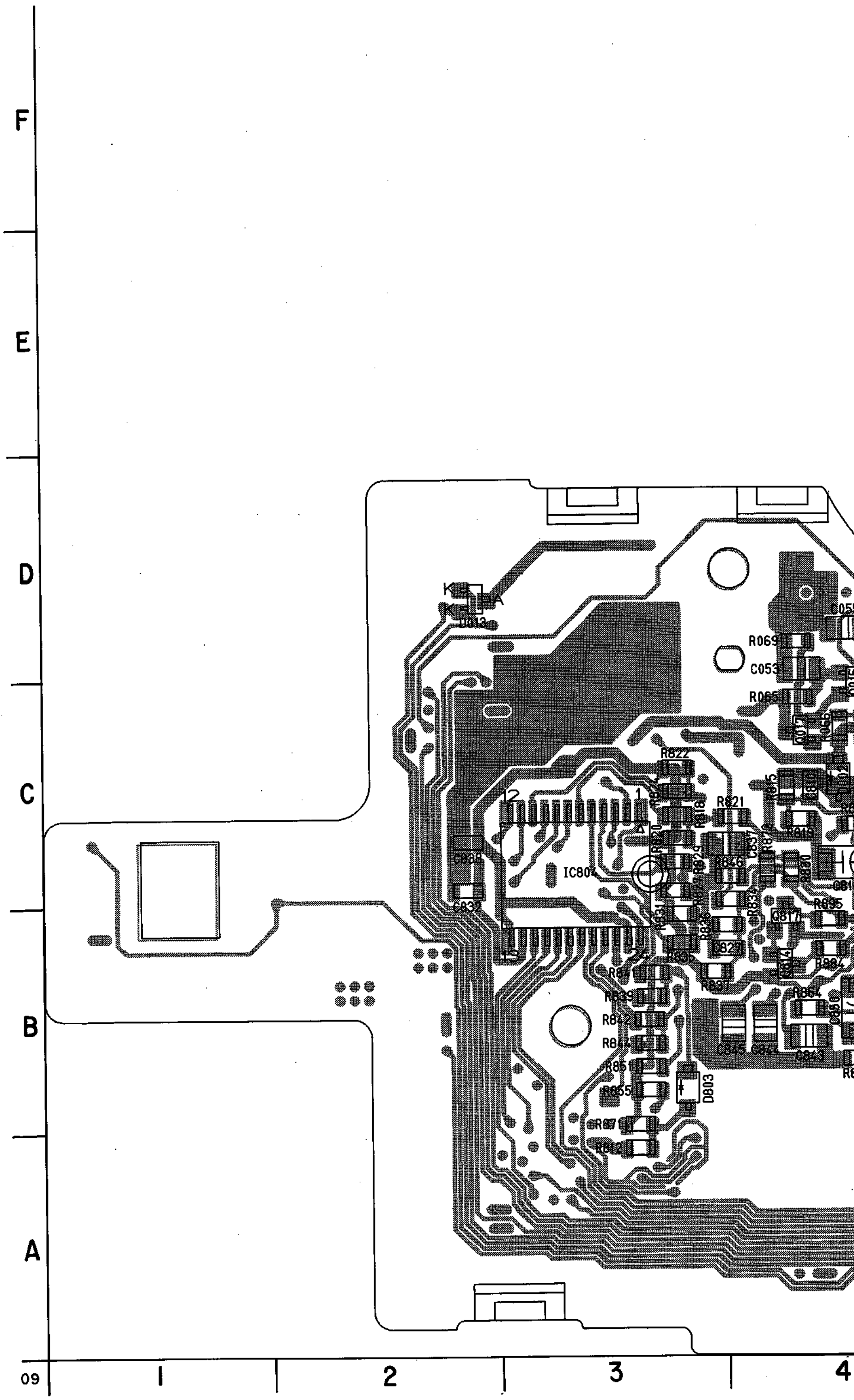
SD-20 (RGB DECODER, SPEAKER DRIVE) PRINTED WIRING BOARD

— Ref No. SD-20 BOARD: 4,000 series —

SD-20 BOARD

C002	C-6
C003	D-6
C004	D-6
C005	C-6
C006	C-7
C007	B-7
C008	B-19
C009	C-19
C010	B-18
C011	C-19
C012	C-7
C013	D-6
C014	C-7
C015	B-7
C016	B-7
C017	B-19
C018	D-6
C019	D-6
C020	B-6
C021	B-6
C022	A-19
C023	B-19
C024	B-5
C025	B-5
C027	B-16
C028	C-16
C029	C-17
C030	C-16
C031	C-16
C032	C-16
C035	B-17
C036	B-16
C037	C-17
C038	C-17
C039	B-17
C040	B-17
C041	C-17
C044	B-17
C045	B-17
C046	B-17
C047	C-17
C048	C-17
C054	D-21
C057	C-4
C058	B-16
C802	C-20
C803	B-20
C804	B-20
C806	B-20
C807	C-21
C809	B-20
C811	C-21
C812	C-21
C813	C-21
C815	C-22
C816	B-5
C818	C-21
C819	C-21
C820	C-21
C824	C-5
C827	B-3
C829	C-5
C831	B-22
C832	C-2
C837	C-4
C838	C-2
C841	B-21
C843	B-4
C844	B-4
C845	B-4
C846	B-4
C847	B-22
C848	C-5
C849	A-20
C850	B-4
CN003	A-20
CN004	A-18
CN005	C-23
CN006	D-23
CN007	F-17
CN008	A-17
CN801	B-23
CN802	A-21
D001	C-7
D003	B-6
D004	B-19
D005	B-19
D006	A-17
D007	D-17
D008	C-17
D803	B-3
IC001	B-6
IC002	C-17
IC801	C-20
IC804	C-3
IC805	B-21
L001	C-19
L002	D-18
L003	D-19
L004	D-19
L801	C-20
L802	B-20
L803	C-22
L804	C-4
L806	C-5
PS001	C-19
Q001	B-18
Q002	B-19
Q003	B-6
Q004	B-7
Q005	B-6
Q006	C-19
Q007	B-18
Q008	B-5
Q009	A-5
Q012	D-21
Q013	D-21
Q014	D-21
Q802	C-20
Q803	C-5
Q804	B-20
Q805	C-5
Q806	C-20
Q807	B-20
Q808	B-5
Q809	B-5
Q817	C-4
Q818	C-22
R001	C-6
R002	C-6
R003	C-6
R004	C-6
R007	B-19
R008	C-6
R009	B-19
R011	C-6
R012	C-7
R013	C-6
R014	D-6
R015	B-6
R016	B-6
R017	C-7
R019	B-19
R020	B-6
R021	B-6
R022	C-6
R024	B-7
R025	B-5
R026	B-5
R028	A-16
R029	A-16
R030	A-16
R031	A-16
R032	A-18
R033	A-18
R034	A-16
R035	A-18
R036	A-16
R037	A-16
R038	A-16
R039	A-16
R041	A-18
R043	A-16
R044	A-16
R045	A-16
R046	A-16
R047	A-15
R048	B-17
R049	C-17
R050	C-16
R051	C-16
R052	B-17
R053	B-17
R055	C-17
R056	C-17
R057	C-17
R059	C-17
R062	C-9
R064	D-4
R071	C-21
R072	D-21
R073	C-21
R074	D-21
R075	C-21
R076	C-21
R085	B-6
R089	B-5
R801	B-19
R803	B-20
R804	C-20
R805	C-20
R806	C-20
R807	B-20
R808	C-20
R809	B-20
R810	C-21
R811	C-20
R812	A-3
R813	B-20
R815	C-4
R816	C-21
R817	C-21
R818	C-3
R819	C-4
R822	C-3
R823	C-22
R824	C-3
R829	C-3
R830	C-4
R833	B-22
R834	C-4
R835	B-3
R837	B-3
R839	B-3
R840	B-22
R841	B-3
R842	B-3
R846	C-4
R849	B-21
R850	B-4
R851	B-3
R852	B-22
R855	B-3
R856	B-22
R857	B-22
R858	B-22
R859	B-22
R860	B-20
R861	B-20
R862	B-20
R863	B-4
R864	B-4
R871	B-3
R873	C-21
R874	B-19
R876	B-19
R877	D-20
R878	C-20
R879	D-21
R880	D-21
R881	B-19
R882	B-20
R889	C-20
R890	C-20
R891	C-20
R892	C-22
S002	C-11
S003	C-9
S004	B-9
S005	F-7
S006	F-8
S007	E-7
S008	D-11
S010	F-11
S012	C-24
S013	E-8
S014	E-11
S015	E-9
S016	B-8
S017	F-9
S021	B-11
S022	D-10
S023	D-8
T001	B-19
X801	A-21

SD-20 BOARD (CONDUCTOR SIDE)



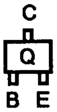
R, SPEAKER DRIVE) PRINTED WIRING BOARD

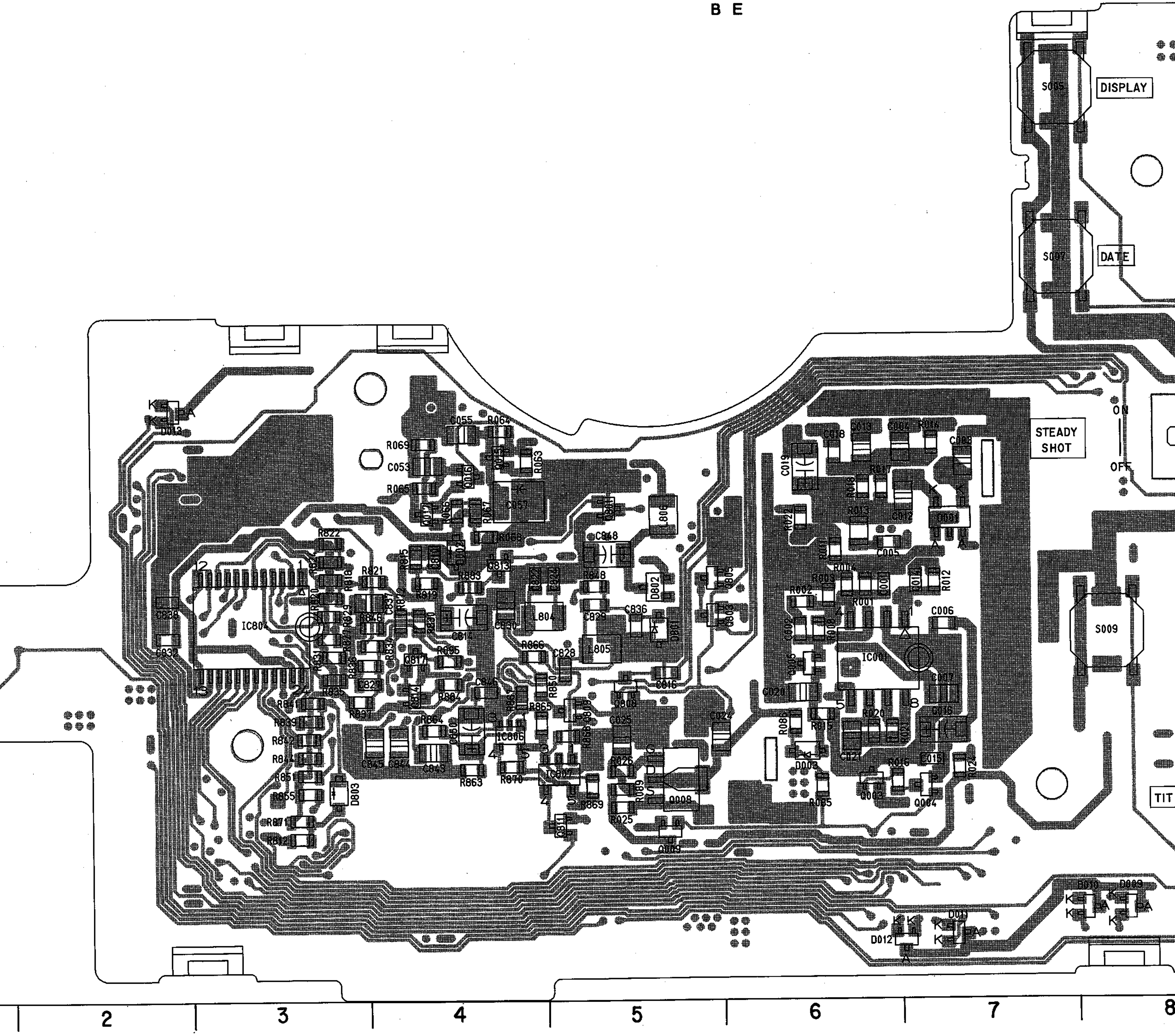
00 series —

D (CONDUCTOR SIDE)

There are few cases that the part isn't mounted in this model is printed on this diagram.

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor





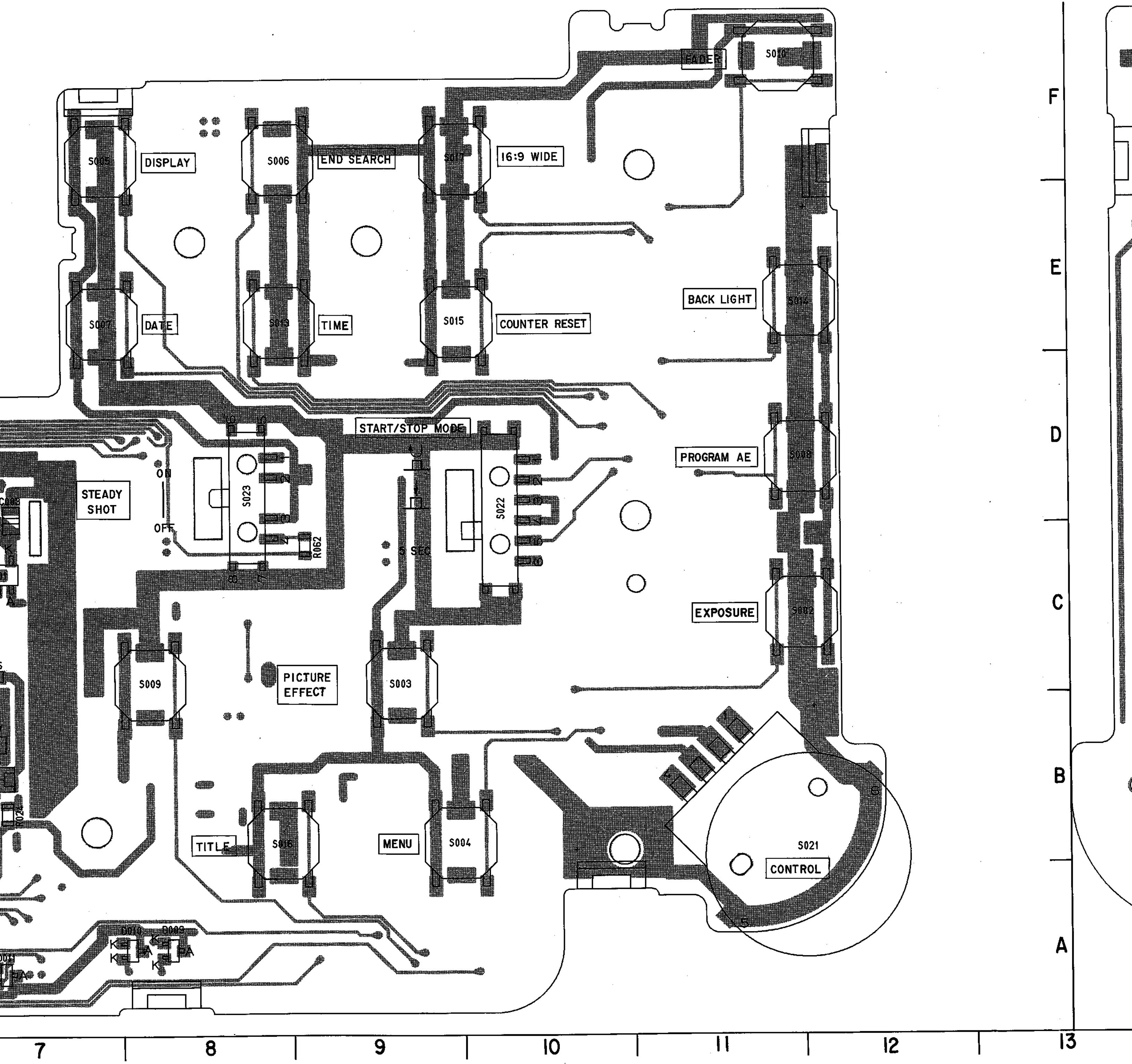
DISPLAY
DATE
STEADY SHOT
ON
OFF
TIT
S005
S007
S009
IC801
IC001
IC806
IC807
D803
D802
D801
D012
Q008
Q009
Q003
Q004
L804
L805
L806
2
3
4
5
6
7
8

model is

tterns

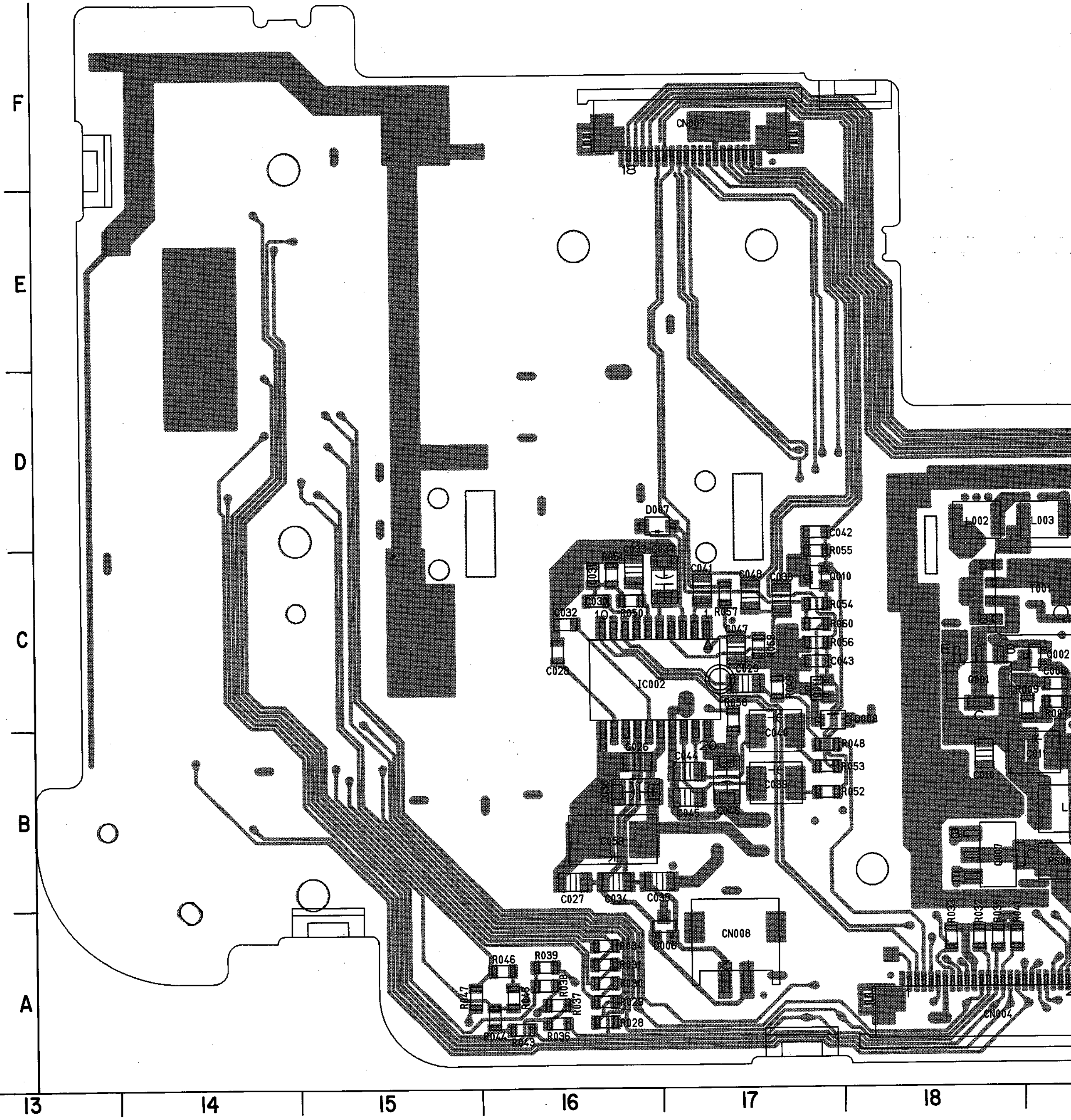
m.

SD-2



FADER
S010
S005
DISPLAY
S006
END SEARCH
S011
16:9 WIDE
S007
DATE
S013
TIME
S015
COUNTER RESET
BACK LIGHT
S014
START/STOP MODE
PROGRAM AE
S008
ON
STEADY SHOT
S023
S022
OFF
R062
5 SEC
EXPOSURE
S002
S009
PICTURE EFFECT
S003
TITLE
S016
MENU
S004
S021
CONTROL
D010
D009
K
A
F
E
D
C
B
A
7
8
9
10
11
12
13

SD-20 BOARD (COMPONENT SIDE)



F
E
D
C
B
A
13
14
15
16
17
18
CN007
D007
C042
R055
Q010
R054
R060
R056
C043
Q009
R048
R053
R052
L002
L003
T001
Q001
Q002
C010
C011
Q007
R051
C033
C037
C041
C048
C038
C031
C030
C032
R050
R057
C047
C028
IC002
C029
R058
C040
C039
C026
C044
C036
C045
C025
C058
C027
C034
C035
CN008
D006
R034
R031
R030
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R038
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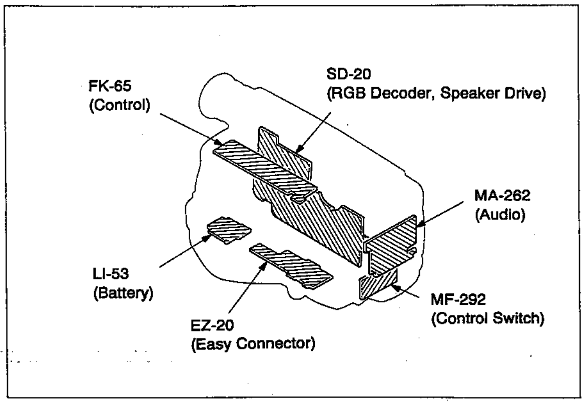
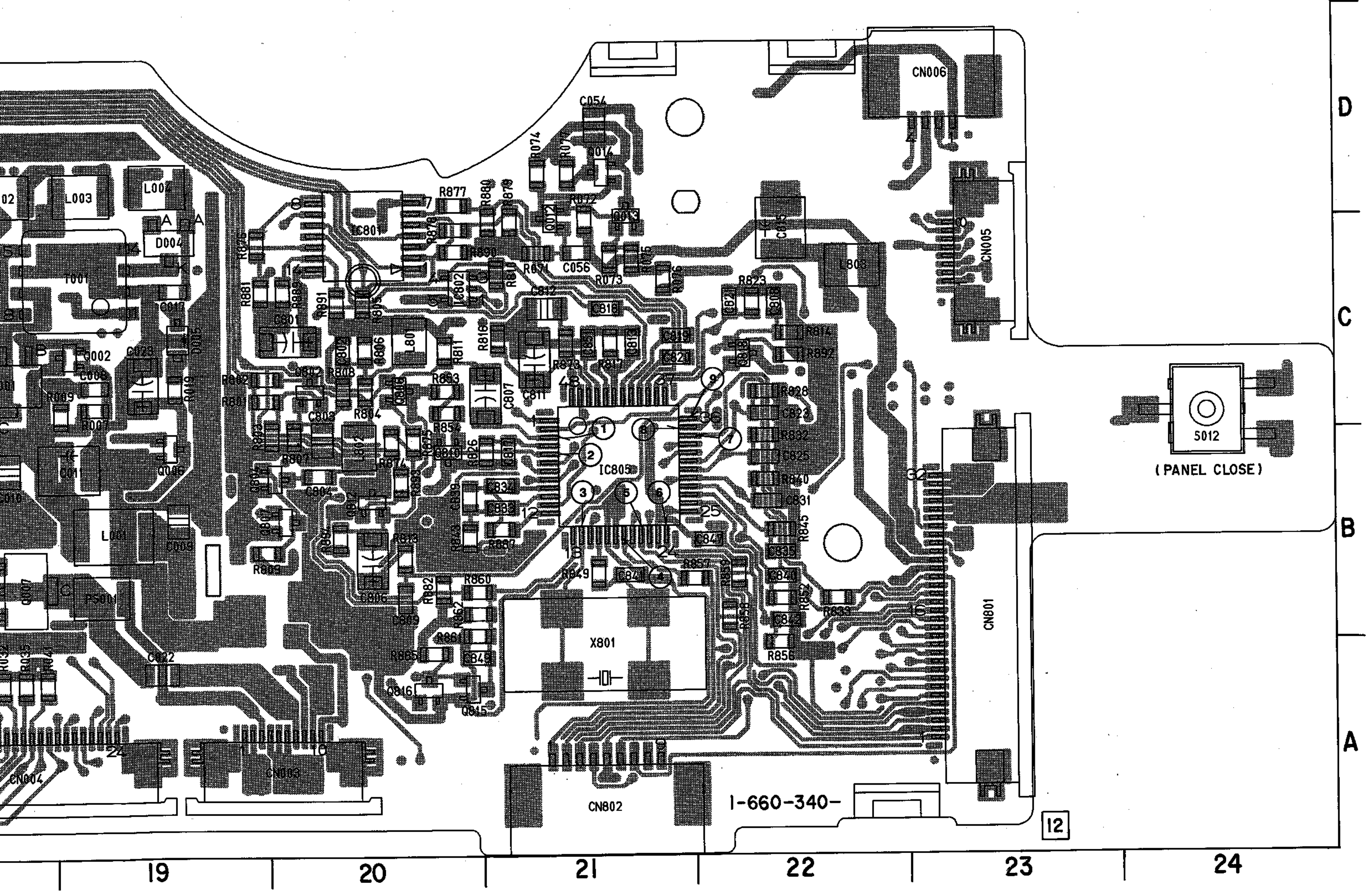
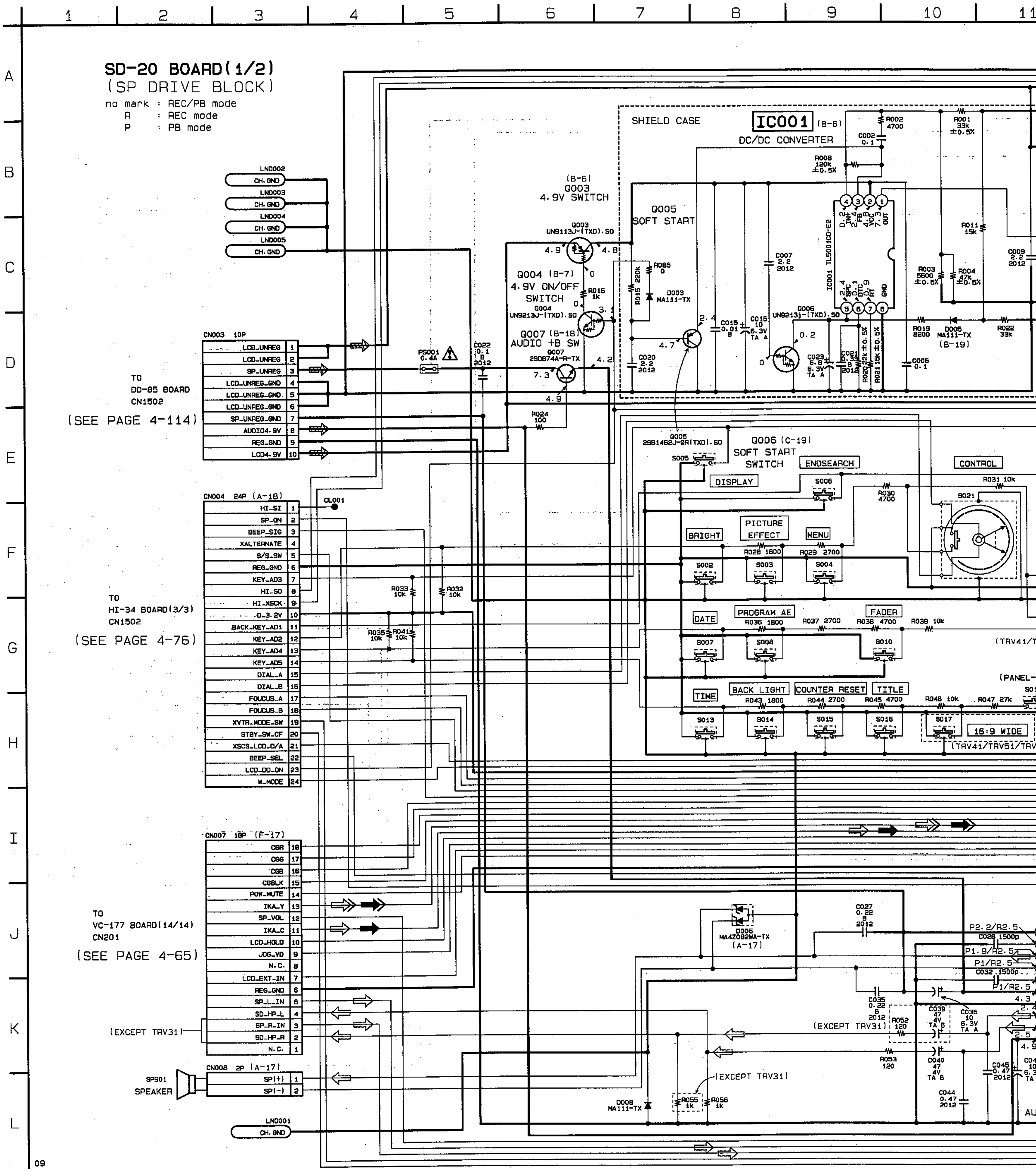
R036
R047
R044
R043
CN004
R033
R032
R035


FK-65
(Control)
SD-20
(RGB Decoder, Speaker Drive)
MA-262
(Audio)
LI-53
(Battery)
MF-292
(Control Switch)
EZ-20
(Easy Connector)

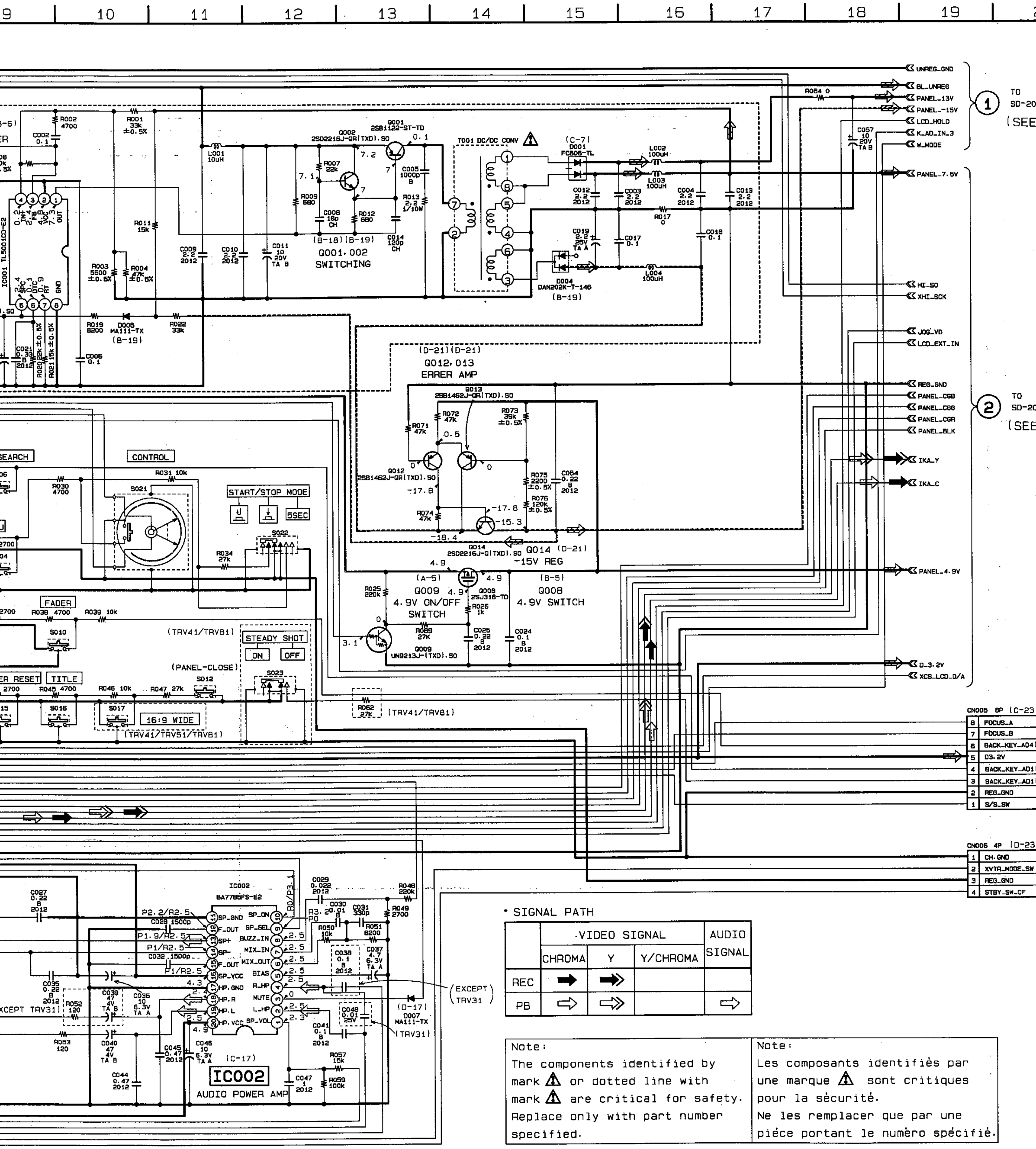

F
E
D
C
B
A
CN006
CN005
C054
R074
R877
IC801
L003
L002
D004
T001
L803
R823
R814
R826
C827
R832
C825
R840
C831
R845
C835
IC805
C807
C811
R853
R852
C834
C833
C837
C847
R857
R849
R860
R882
R861
R865
C849
Q816
Q815
X801
L001
P5001
C022
CN004
CN803
CN802
CN801
5012
(PANEL CLOSE)
1-660-340-
12
19
20
21
22
23
24

SD-20 (SPEAKER DRIVE) SCHEMATIC DIAGRAM

— Ref No. SD-20 BOARD: 4,000 series —



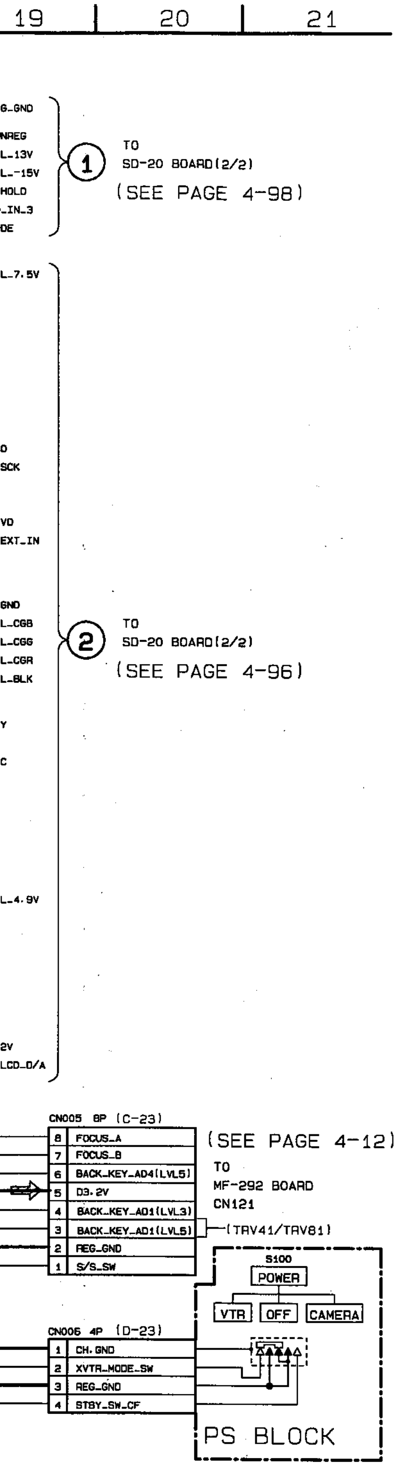
SD-20 BOARD(1/2)
(SP DRIVE BLOCK)
no mark : REC/PB mode
R : REC mode
P : PB mode
SHIELD CASE
IC001 (B-6)
DC/DC CONVERTER
IC001 TL5001CD-E2
(B-6) Q003 4.9V SWITCH
Q003 UN9113J-(TXD).SO
Q004 (B-7) 4.9V ON/OFF SWITCH
Q004 UN9213J-(TXD).SO
Q007 (B-18) AUDIO +B SW
Q007 2SD874A-R-TX
Q005 SOFT START
Q005 2SB1462J-QR(TXD).SO
Q006 (C-19) SOFT START SWITCH
Q006 UN9213J-(TXD).SO
PS001 0.4A
D003 MA111-TX
D005 MA111-TX (B-19)
D006 MA4Z082WA-TX (A-17)
D008 MA111-TX
CN003 10P
LCD_UNREG
LCD_UNREG
SP_UNREG
LCD_UNREG_GND
LCD_UNREG_GND
LCD_UNREG_GND
SP_UNREG_GND
AUDIO4.9V
REG_GND
LCD4.9V
TO DD-85 BOARD CN1502
(SEE PAGE 4-114)
CN004 24P (A-18)
HI_SI
SP_ON
BEEP_SIG
XALTERNATE
S/S_SW
REG_GND
KEY_AD3
HI_SO
HI_XSCK
D_3.2V
BACK_KEY_AD1
KEY_AD2
KEY_AD4
KEY_AD5
DIAL_A
DIAL_B
FOUCUS_A
FOUCUS_B
XVTR_MODE_SW
STBY_SW_CF
XSCS_LCD_D/A
BEEP_SEL
LCD_DD_ON
W_MODE
TO HI-34 BOARD(3/3) CN1502
(SEE PAGE 4-76)
CN007 18P (F-17)
CGR
CGG
CGB
CGBLK
POW_MUTE
IKA_Y
SP_VOL
IKA_C
LCD_HOLD
JOG_VD
N.C.
LCD_EXT_IN
REG_GND
SP_L_IN
SD_HP_L
SP_R_IN
SD_HP_R
N.C.
TO VC-177 BOARD(14/14) CN201
(SEE PAGE 4-65)
(EXCEPT TRV31)
CN008 2P (A-17)
SP(+)
SP(-)
SP901 SPEAKER
LND001 CH.GND
LND002 CH.GND
LND003 CH.GND
LND004 CH.GND
LND005 CH.GND
CL001
DISPLAY
ENDSEARCH
CONTROL
BRIGHT
PICTURE EFFECT
MENU
DATE
PROGRAM AE
FADER
TIME
BACK LIGHT
COUNTER RESET
TITLE
16:9 WIDE
(TRV41/TRV51/TRV
(TRV41/T
(PANEL-
S002 S003 S004 S005 S006 S007 S008 S010 S013 S014 S015 S016 S017 S021
R001 33k ±0.5%
R002 4700
R003 5600 ±0.5%
R004 47k ±0.5%
R008 120k ±0.5%
R011 15k
R015 220k
R016 1k
R019 8200
R020 12k ±0.5%
R021 15k ±0.5%
R022 33k
R024 100
R028 1800
R029 2700
R030 4700
R031 10k
R032 10k
R033 10k
R035 10k
R036 1800
R037 2700
R038 4700
R039 10k
R041 10k
R043 1800
R044 2700
R045 4700
R046 10k
R047 27k
R052 120
R053 120
R055 1k
R056 1k
R085 0
C002 0.1
C005 0.1
C007 2.2 2012
C009 2.2 2012
C015 0.01 B
C016 10 6.3V TA A
C020 2.2 2012
C021 0.33 B 2012
C022 0.1 B 2012
C023 6.8 6.3V TA A
C027 0.22 B 2012
C028 1500p
C032 1500p
C035 0.22 B 2012
C036 10 6.3V TA A
C039 47 4V TA B
C040 47 4V TA B
C044 0.47 2012
C045 0.47 2012
P2.2/R2.5
P1.9/R2.5
P1/R2.5
4.9 4.8 0 3.4 7.3 4.2 4.9 4.7 2.4 0 0.2 4.3
09
1 2 3 4 5 6 7 8 9 10 11
A B C D E F G H I J K L


9
10
11
12
13
14
15
16
17
18
19
R002 4700
R001 33k ±0.5%
C002 0.1
Q002 2SD2216J-QR(TXD).SO
Q001 2SB1122-ST-TD
L001 10uH
R007 22k
R009 680
C008 16p CH
R012 680
C005 1000p B
R013 2.2 1/10W
C014 120p CH
(B-18)(B-19)
Q001,002 SWITCHING
T001 DC/DC CONV
(C-7) D001 FC805-TL
L002 100uH
L003 100uH
C012 2.2 2012
C003 2.2 2012
C004 2.2 2012
C013 2.2 2012
R017 0
C018 0.1
C019 2.2 25V TA A
C017 0.1
L004 100uH
D004 DAN202K-T-146 (B-19)
IC001 TL5001CD-E2
R011 15k
C009 2.2 2012
C010 2.2 2012
C011 10 20V TA B
R003 5600 ±0.5%
R004 47k ±0.5%
R019 8200
D005 MA111-TX (B-19)
R022 33k
C006 0.1
R064 0
C057 10 20V TA B
UNREG_GND
BL_UNREG
PANEL_13V
PANEL_-15V
LCD_HOLD
K_AD_IN_3
W_MODE
PANEL_7.5V
HI_SO
XHI_SCK
JOG_VD
LCD_EXT_IN
REG_GND
PANEL_CGB
PANEL_CGG
PANEL_CGR
PANEL_BLK
IKA_Y
IKA_C
PANEL_4.9V
D_3.2V
XCS_LCD_D/A
TO SD-20 (SEE
(D-21)(D-21)
Q012,013 ERRER AMP
Q013 2SB1462J-QR(TXD).SO
Q012 2SB1462J-QR(TXD).SO
R071 47k
R072 47k
R073 39k ±0.5%
R075 2200 ±0.5%
C054 0.22 B 2012
R076 120k ±0.5%
R074 47k
Q014 2SD2216J-Q(TXD).SO
Q014 (D-21) -15V REG
(A-5) Q009 4.9V ON/OFF SWITCH
Q008 2SJ316-TD
(B-5) Q008 4.9V SWITCH
R025 220k
R026 1k
R089 27k
C025 0.22 B 2012
C024 0.1 B 2012
Q009 UN9213J-(TXD).SO
SEARCH
CONTROL
R031 10k
R030 4700
S021
START/STOP MODE
5SEC
S022
R034 27k
FADER
R038 4700
R039 10k
S010
(TRV41/TRV81)
STEADY SHOT
ON
OFF
(PANEL-CLOSE)
S012
S023
R046 10k
R047 27k
ER RESET
TITLE
R045 4700
S016
S017
16:9 WIDE
(TRV41/TRV51/TRV81)
R062 27k
(TRV41/TRV81)
CN005 8P (C-23
8 FOCUS_A
7 FOCUS_B
6 BACK_KEY_AD4
5 D3.2V
4 BACK_KEY_AD1
3 BACK_KEY_AD1
2 REG_GND
1 S/S_SW
CN006 4P (D-23
1 CH.GND
2 XVTR_MODE_SW
3 REG_GND
4 STBY_SW_CF
IC002 BA7786FS-E2
IC002 AUDIO POWER AMP
(C-17)
SP_GND
F_OUT
SP+
SP-
SP_VCC
HP.GND
HP.R
HP.L
HP.VCC
SP_ON
SP_SEL
BUZZ_IN
MIX_IN
MIX_OUT
BIAS
R_HP
MUTE
L_HP
SP_VOL
C027 0.22 B 2012
C028 1500p
C032 1500p
C029 0.022 2012
C030 0.01 B
C031 330p
R048 220k
R049 2700
R050 10k
R051 8200
C038 0.1 B 2012
C037 4.7 6.3V TA A
C048 0.01 25V
C041 0.1 B 2012
C035 0.22 B 2012
C039 47 4V TA B
C036 10 6.3V TA A
R052 120
R053 120
C040 47 4V TA B
C044 0.47 2012
C045 0.47 2012
C046 10 6.3V TA A
C047 1 2012
R057 15k
R059 100k
(D-17) D007 MA111-TX
(EXCEPT TRV31)
(TRV31)
XCEPT TRV31)

• SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»		
PB	⇨	⇨»		⇨

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.


19
20
21
G_GND
NREG
L_13V
L_-15V
HOLD
_IN_3
DE
①
TO
SD-20 BOARD(2/2)
(SEE PAGE 4-98)
L_7.5V
D
SCK
VD
EXT_IN
GND
L_CGB
L_CGG
L_CGR
L_BLK
②
TO
SD-20 BOARD(2/2)
(SEE PAGE 4-96)
Y
C
L_4.9V
2V
LCD_D/A
CN005 8P (C-23)
8 FOCUS_A
7 FOCUS_B
6 BACK_KEY_AD4(LVL5)
5 D3.2V
4 BACK_KEY_AD1(LVL3)
3 BACK_KEY_AD1(LVL5)
2 REG_GND
1 S/S_SW
(SEE PAGE 4-12)
TO
MF-292 BOARD
CN121
(TRV41/TRV81)
S100
POWER
VTR
OFF
CAMERA
CN006 4P (D-23)
1 CH.GND
2 XVTR_MODE_SW
3 REG_GND
4 STBY_SW_CF
PS BLOCK

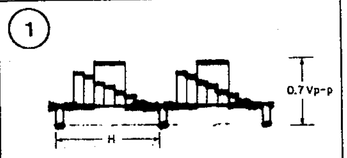
s par
iques

une
spécifié.

SPEAKER DRIVE
SD-20 (1/2)

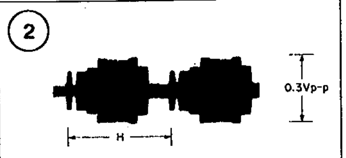
SD-20 BOARD

①



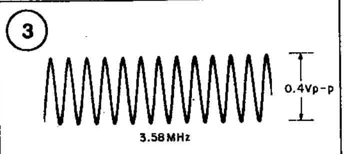
IC805 ③ REC/PB

②



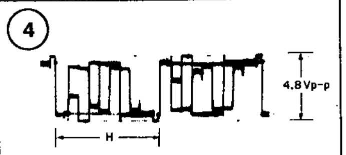
IC805 ⑤ REC/PB

③



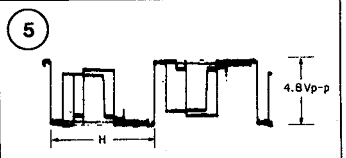
IC805 ⑭ REC/PB

④



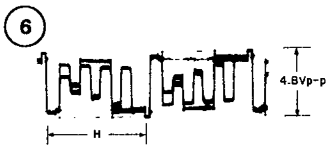
IC805 ⑲ REC/PB

⑤



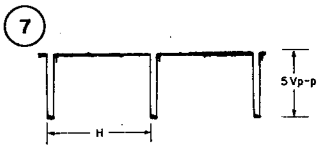
IC805 ㉑ REC/PB

⑥



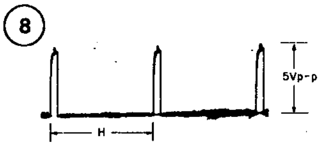
IC805 ㉔ REC/PB

⑦



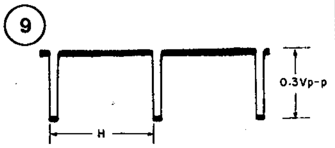
IC805 ㉞ REC/PB

⑧



IC805 ㉟ REC/PB

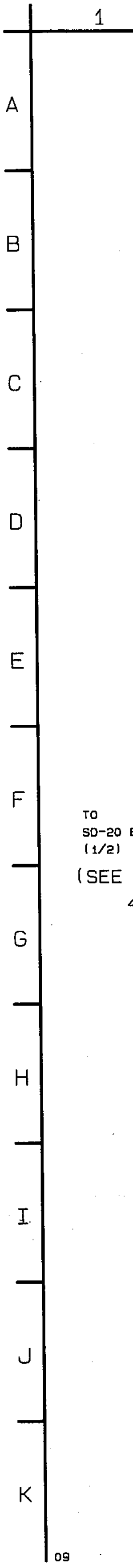
⑨



IC805 ㊱ REC/PB

SD-20 (RGB

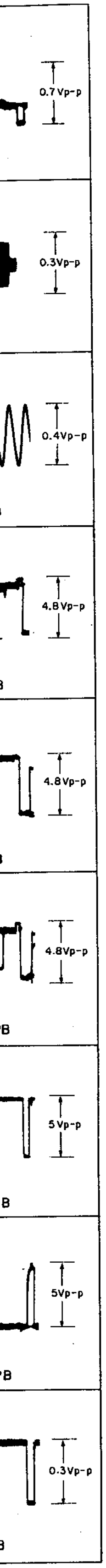
— Ref No. SD-20

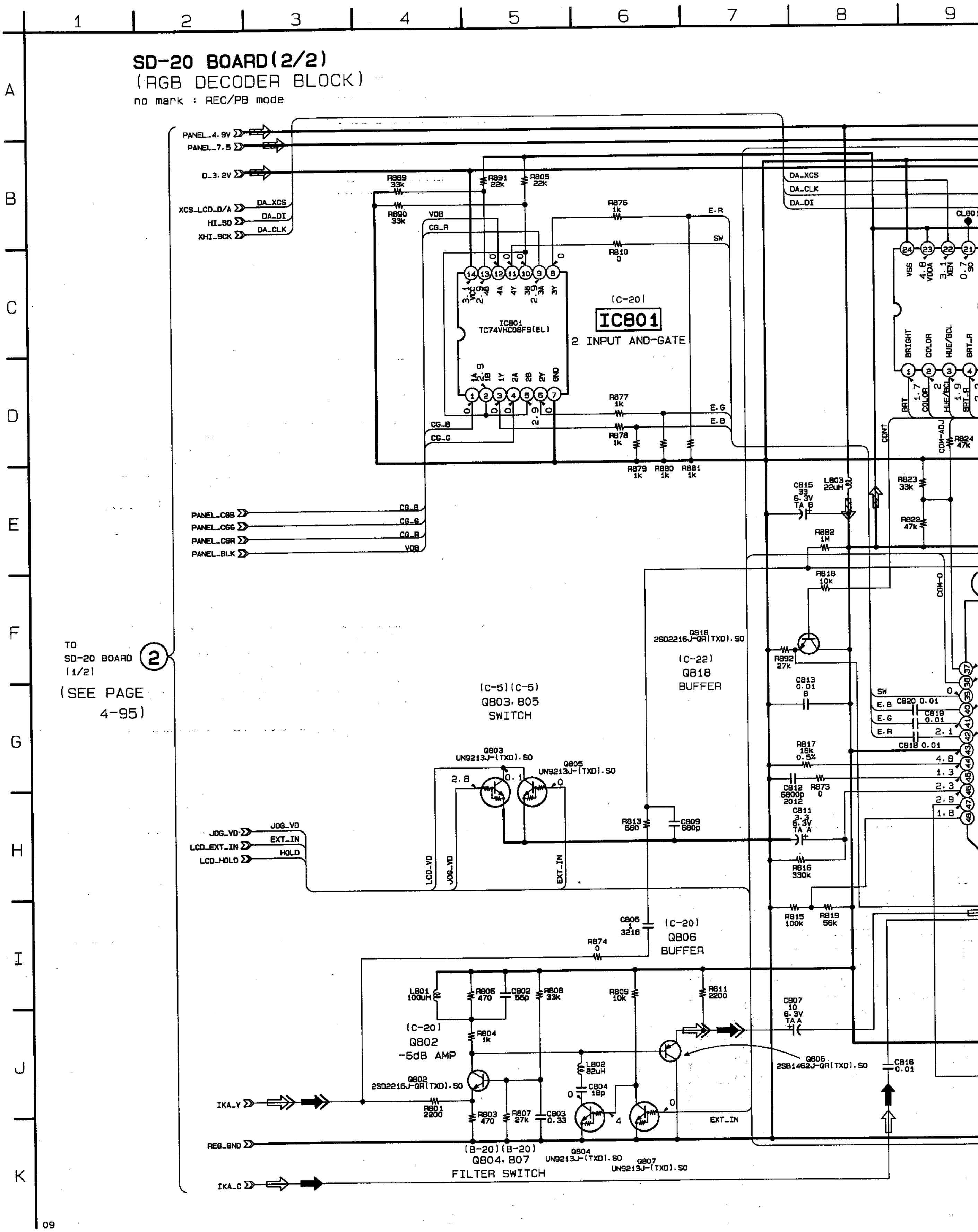

1
A
B
C
D
E
F
G
H
I
J
K
TO
SD-20
(1/2)
(SEE
09

SD-20 (RGB DECODER) SCHEMATIC DIAGRAM

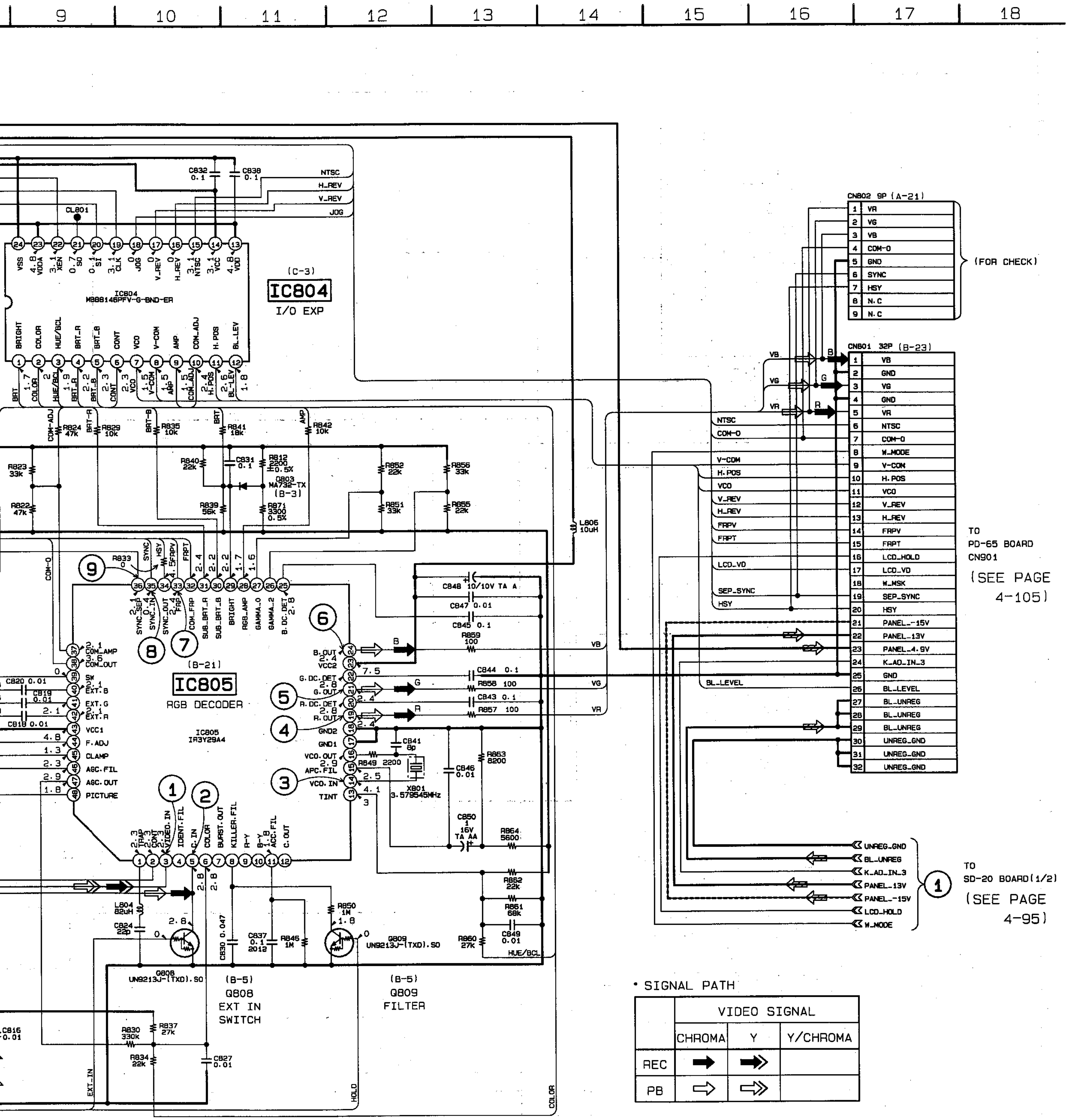
• Refer to page 4–88 for Printed Wiring Board.

— Ref No. SD-20 BOARD: 4,000 series —





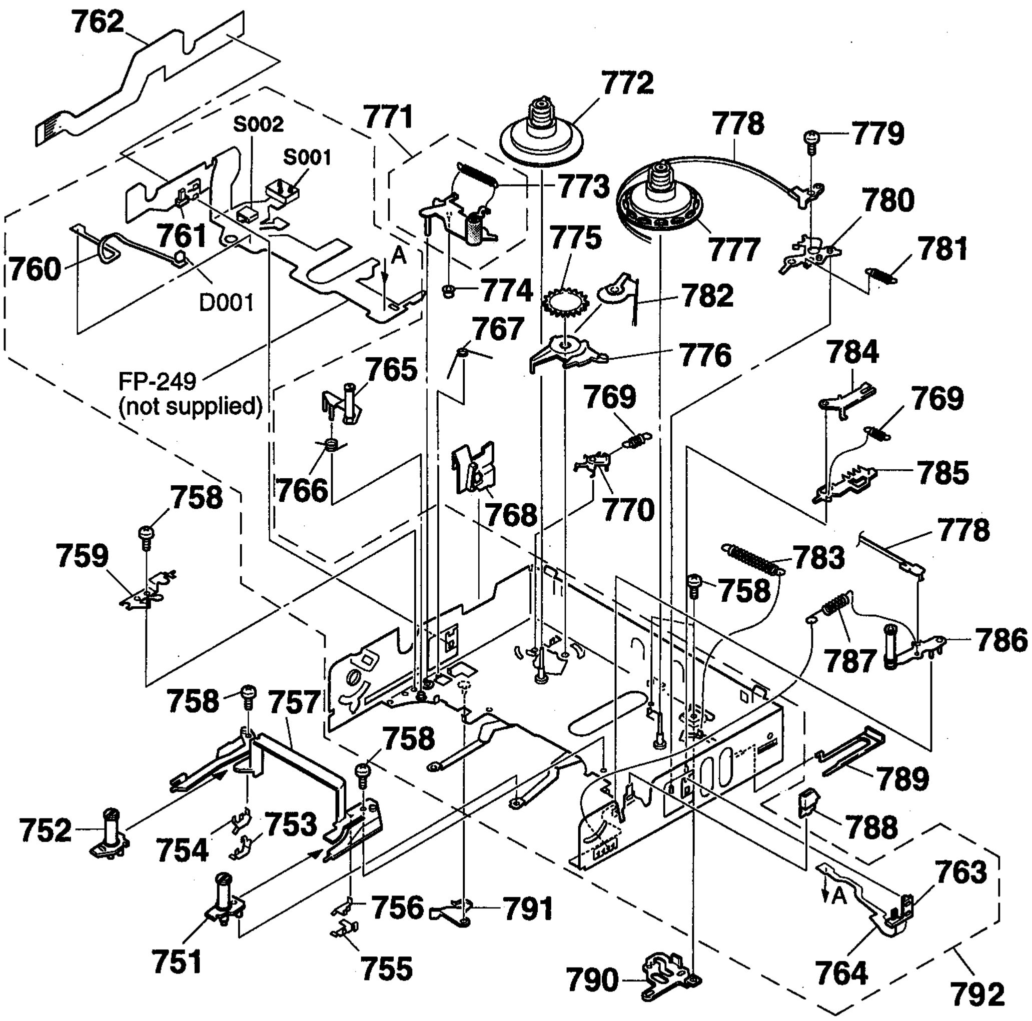
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
J
K
SD-20 BOARD(2/2)
(RGB DECODER BLOCK)
no mark : REC/PB mode
PANEL_4.9V
PANEL_7.5
D_3.2V
XCS_LCD_D/A
HI_SO
XHI_SCK
DA_XCS
DA_DI
DA_CLK
R889 33k
R890 33k
R891 22k
R805 22k
VOB
CG_R
R876 1k
E.R
SW
R810 0
(C-20)
IC801
2 INPUT AND-GATE
IC801 TC74VHC08FS(EL)
R877 1k
E.G
E.B
R878 1k
CG_B
CG_G
R879 1k
R880 1k
R881 1k
PANEL_CGB
PANEL_CGG
PANEL_CGR
PANEL_BLK
TO SD-20 BOARD (1/2)
②
(SEE PAGE 4-95)
(C-5)(C-5)
Q803, 805
SWITCH
Q803 UN9213J-(TXD).SO
Q805 UN9213J-(TXD).SO
JOG_VD
LCD_EXT_IN
LCD_HOLD
EXT_IN
HOLD
LCD_VD
Q818 2SD2216J-QR(TXD).SO
(C-22)
Q818
BUFFER
R813 560
C809 680p
C806 1 3216
(C-20)
Q806
BUFFER
R874 0
L801 100uH
R806 470
C802 56p
R808 33k
R809 10k
R811 2200
(C-20)
Q802
-6dB AMP
R804 1k
Q802 2SD2216J-QR(TXD).SO
L802 82uH
C804 18p
IKA_Y
R801 2200
R803 470
R807 27k
C803 0.33
REG_GND
(B-20)(B-20)
Q804, 807
FILTER SWITCH
Q804 UN9213J-(TXD).SO
Q807 UN9213J-(TXD).SO
IKA_C
Q806 2SB1462J-QR(TXD).SO
C816 0.01
C807 10 6.3V TA A
C815 33 6.3V TA B
L803 22uH
R823 33k
R822 47k
R882 1M
R818 10k
R824 47k
R892 27k
C813 0.01 B
R817 18k 0.5%
C812 6800p 2012
R873 0
C811 3.3 6.3V TA A
R816 330k
R815 100k
R819 56k
C820 0.01
C819 0.01
C818 0.01
VSS
VDDA
XEN
SO
BRIGHT
COLOR
HUE/BCL
BRT_R
CONT
COM-ADJ
COM-O
CL801


9
10
11
12
13
14
15
16
17
18
IC804 I/O EXP (C-3)
IC804 M88146PFV-G-BND-ER
VSS
VDDA
XEN
SO
SI
CLK
JOG
V_REV
H_REV
NTSC
VCC
VDD
BRIGHT
COLOR
HUE/BCL
BRT_R
BRT_B
CONT
VCO
V-COM
AMP
COM_ADJ
H.POS
BL_LEV
CL801
C832 0.1
C838 0.1
NTSC
H_REV
V_REV
JOG
IC805 RGB DECODER (B-21)
IC805 IR3Y29A4
SYNC_SEP
SYNC_IN
SYNC_OUT
COM_FRP
SUB_BRT_R
SUB_BRT_B
BRIGHT
RGB_AMP
GAMMA_0
GAMMA_2
B.DC.DET
COM_AMP
COM_OUT
SW
EXT.B
EXT.G
EXT.R
VCC1
F.ADJ
CLAMP
AGC.FIL
AGC.OUT
PICTURE
TRAP
CONT
VIDEO.IN
IDENT.FIL
C.IN
COLOR
BURST.OUT
KILLER.FIL
R-Y
B-Y
ACC.FIL
C.OUT
B.OUT
VCC2
G.DC.DET
G.OUT
R.DC.DET
R.OUT
GND2
GND1
VCO.OUT
APC.FIL
VCO.IN
TINT
R824 47k
R829 10k
R835 10k
R841 18k
R842 10k
R823 33k
R822 47k
R840 22k
C831 0.1
R812 2200 0.5%
D803 MA732-TX (B-3)
R839 56k
R871 3300 0.5%
R852 22k
R851 33k
R856 33k
R855 22k
L806 10uH
R833 0
C848 10/10V TA A
C847 0.01
C845 0.1
R859 100
C844 0.1
R858 100
C843 0.1
R857 100
C841 8p
R863 8200
R849 2200
C846 0.01
X801 3.579545MHz
C850 16V TA AA
R864 5600
R862 22k
R861 68k
C849 0.01
R860 27K
C820 0.01
C819 0.01
C818 0.01
L804 82uH
C824 22p
C830 0.047
C837 0.1 2012
R845 1M
R850 1M
Q808 UN9213J-(TXD).SO
Q809 UN9213J-(TXD).SO
(B-5) Q808 EXT IN SWITCH
(B-5) Q809 FILTER
C816 0.01
R830 330k
R837 27k
R834 22k
C827 0.01
EXT_IN
HOLD
COLOR
HUE/BCL
COM-O
CN802 9P (A-21)
1 VR
2 VG
3 VB
4 COM-O
5 GND
6 SYNC
7 HSY
8 N.C
9 N.C
(FOR CHECK)
CN801 32P (B-23)
1 VB
2 GND
3 VG
4 GND
5 VR
6 NTSC
7 COM-O
8 W_MODE
9 V-COM
10 H.POS
11 VCO
12 V_REV
13 H_REV
14 FRPV
15 FRPT
16 LCD_HOLD
17 LCD_VD
18 W_MSK
19 SEP_SYNC
20 HSY
21 PANEL_-15V
22 PANEL_13V
23 PANEL_4.9V
24 K_AD_IN_3
25 GND
26 BL_LEVEL
27 BL_UNREG
28 BL_UNREG
29 BL_UNREG
30 UNREG_GND
31 UNREG_GND
32 UNREG_GND
TO PD-65 BOARD CN901 (SEE PAGE 4-105)
UNREG_GND
BL_UNREG
K_AD_IN_3
PANEL_13V
PANEL_-15V
LCD_HOLD
W_MODE
TO SD-20 BOARD(1/2) (SEE PAGE 4-95)
①
②
③
④
⑤
⑥
⑦
⑧
⑨

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	⇛	
PB	⇨	⇨⇨	

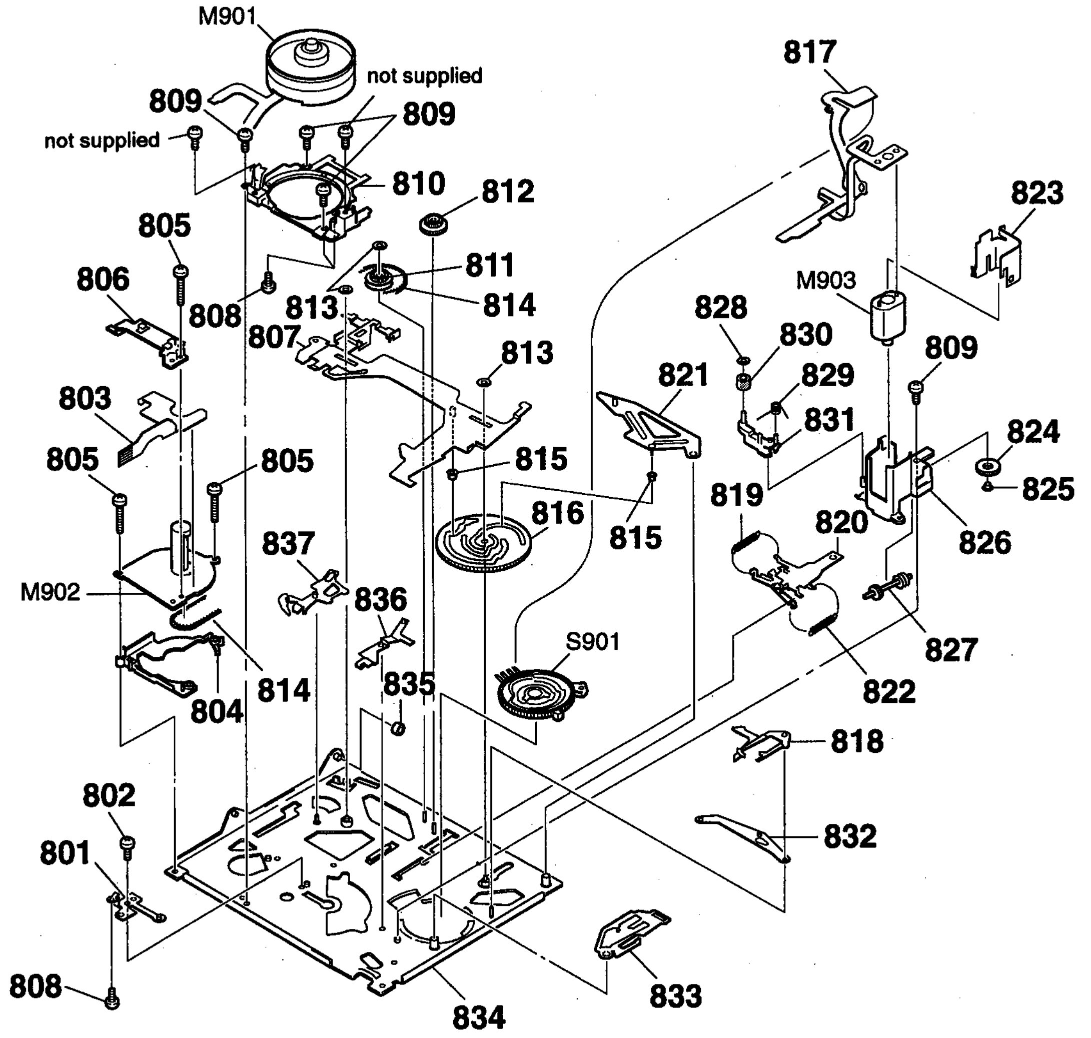
5-1-10. LS CHASSIS ASSEMBLY



762
772
771
S002
S001
778
779
773
780
761
775
777
781
760
A
774
782
D001
767
776
784
765
FP-249
(not supplied)
769
769
785
766
758
768
770
778
759
783
758
786
787
758
757
758
789
752
753
754
788
763
A
756
791
751
755
790
764
792

Ref. No.	Part No.	Description	Remark
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-A	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1.4X2.5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER (T), SENSOR	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER (S), SENSOR	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING, TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-01	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-01	RATCHET, T	
771	X-3945-394-1	ARM ASSY, PINCH	
772	X-3945-398-1	DECK ASSY, REEL, T	
773	3-965-648-01	SPRING (PINCH), TENSION	
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1.4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING, TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-A	CHASSIS (S1) ASSY, LS	
D001	8-719-988-42	DIODE GL453	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (Hi8 MP, ME/MP, REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C. LOCK)	

5-1-11. MECHANISM CHASSIS ASSEMBLY


M901
not supplied
809
809
not supplied
810
812
817
823
805
806
808
813
811
814
807
813
M903
828
830
809
803
821
829
831
824
805
805
815
825
819
816
820
826
837
815
M902
836
827
S901
814
835
822
804
818
802
832
801
808
834
833

Ref. No.	Part No.	Description	Remark
801	3-965-525-01	GROUND, SHAFT	
802	3-965-550-02	SCREW (M1.7X1.6)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-965-545-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1.4 X 6.5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	X-3945-387-1	SLIDER ASSY, M	
808	3-965-588-01	SCREW (M1.4)	
809	3-947-503-01	SCREW (M1.4X2.5)	
810	A-7040-416-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING, TENSION	
820	X-3945-388-1	SLIDER ASSY, GL	
821	3-965-532-01	ARM, LS	
822	3-965-535-01	SPRING, TENSION	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING, TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3945-386-1	CHASSIS ASSY, MECHANICAL	
835	3-965-526-01	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
M901	A-7048-831-A	DRUM ASSY (DGH-0D1A-R)	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	

AV-34 **CD-146**

5-2. ELECTRICAL PARTS LIST

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH
- Canadian model is abbreviated as CND.

Ref. No.	Part No.	Description	Remark
*	A-7072-533-A	AV-34 (VH4C) BOARD, COMPLETE (TRV81) ****************************	
*	A-7072-730-A	AV-34 (VMPE) BOARD, COMPLETE ****************************	(TRV41/TRV51)
*	A-7072-802-A	AV-34 (VSLE) BOARD, COMPLETE (TRV31) ****************************	(Ref. No. 3,000 Series)
		< CAPACITOR >	
C251	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
		< CONNECTOR >	
CN251	1-766-344-21	CONNECTOR, FFC/FPC 14P	
CN252	1-573-923-21	CONNECTOR, FFC/FPC (ZIF) 14P	
		< DIODE >	
D251	8-719-045-87	DIODE MA4Z082WA-(TX).SO	(TRV41/TRV51/TRV81)
D252	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D253	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D254	8-719-045-87	DIODE MA4Z082 WA-(TX).SO (TRV81)	
D255	8-719-045-87	DIODE MA4Z082 WA-(TX).SO (TRV81)	
D256	8-719-420-14	DIODE MA8082-M (TRV81)	
		< COIL >	
L251	1-414-072-11	INDUCTOR 1uH	
		< TRANSISTOR >	
Q251	8-729-101-07	TRANSISTOR 2SB798-DL	
Q252	8-729-425-64	TRANSISTOR 2SD2216Q	
		< RESISTOR >	
R251	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
R252	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R253	1-216-820-11	METAL CHIP 820 5% 1/16W	
R254	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R255	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R256	1-216-864-11	METAL CHIP 0 5% 1/16W	
R257	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV81)
R258	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV81)
R259	1-216-864-11	METAL CHIP 0 5% 1/16W	
R260	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R261	1-216-864-11	METAL CHIP 0 5% 1/16W	
R262	1-216-864-11	METAL CHIP 0 5% 1/16W	
R263	1-216-864-11	METAL CHIP 0 5% 1/16W	
R264	1-216-864-11	METAL CHIP 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
*	A-7072-527-A	CD-146 (VH4C) BOARD, COMPLETE *****************************	(Ref. No. 3,000 Series) (IC401 is not included to the mounted board)
		< CAPACITOR >	
C401	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C405	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	
C406	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	
		< CONNECTOR >	
CN401	1-766-627-21	CONNECTOR, FFC/FPC 16P	
		< IC >	
IC401	A-7030-638-A	CCD BLOCK ASSY (079 SERVICE) (CCD IMAGER)	(TRV41/TRV81)
IC401	A-7030-718-A	CCD BLOCK ASSY (086 SERVICE) (CCD IMAGER)	(TRV31/TRV51)
		< COIL >	
L401	1-412-963-11	INDUCTOR 100uH	

Be sure to read "Note on the CCD Imager replacement" on page 4–8 when changing the CCD imager.

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q401	8-729-232-86	TRANSISTOR 2SK1875-BL/V	
Q402	8-729-117-73	TRANSISTOR 2SC4178-F14	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R403	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R404	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R407	1-216-295-91	CONDUCTOR, CHIP (2012)	

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* A-7092-941-A DD-85 (VH4) BOARD, COMPLETE
****
(Ref. No. 20,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C1501	1-135-159-21	TANTALUM CHIP 10uF 10%	20V
C1502	1-135-159-21	TANTALUM CHIP 10uF 10%	20V
C1503	1-135-165-11	TANTAL. CHIP 33uF 20%	16V
C1504	1-135-159-21	TANTALUM CHIP 10uF 10%	20V
C1505	1-135-159-21	TANTALUM CHIP 10uF 10%	20V
C1506	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C1507	1-162-967-11	CERAMIC CHIP 0.0033uF 10%	50V
C1508	1-162-960-11	CERAMIC CHIP 220PF 10%	50V
C1509	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C1510	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C1511	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V
C1512	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V
C1513	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C1514	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C1515	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C1519	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C1520	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C1522	1-162-967-11	CERAMIC CHIP 0.0033uF 10%	50V
C1523	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C1524	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C1525	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C1526	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V
C1529	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C1530	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C1531	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C1532	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C1533	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C1534	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C1535	1-135-216-11	TANTALUM CHIP 10uF 20%	10V
C1536	1-135-216-11	TANTALUM CHIP 10uF 20%	10V
C1537	1-135-216-11	TANTALUM CHIP 10uF 20%	10V
C1538	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C1539	1-164-505-11	CERAMIC CHIP 2.2uF	16V
C1540	1-135-214-21	TANTAL. CHIP 4.7uF 20%	20V
C1541	1-113-985-11	TANTAL. CHIP 10uF 20%	20V
C1542	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C1543	1-165-178-11	CERAMIC CHIP 6.8uF	16V
C1544	1-104-752-11	TANTAL. CHIP 33uF 20%	6.3V
C1545	1-135-216-11	TANTALUM CHIP 10uF 20%	10V
C1546	1-135-216-11	TANTALUM CHIP 10uF 20%	10V
C1547	1-135-216-11	TANTALUM CHIP 10uF 20%	10V
C1548	1-162-968-11	CERAMIC CHIP 0.0047uF 10%	50V
C1550	1-164-489-11	CERAMIC CHIP 0.22uF 10%	16V
C1551	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN1501	1-569-775-21	PIN, CONNECTOR 5P	
CN1502	1-766-340-21	CONNECTOR, FFC/FPC 10P	
CN1503	1-691-542-21	CONNECTOR, BOARD TO BOARD 48P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D1501	8-719-027-77	DIODE MA796-TX	
D1502	8-719-404-49	DIODE MA111	
D1503	8-719-420-14	DIODE MA8082-M	
D1504	8-719-420-14	DIODE MA8082-M	

< IC >

Ref. No.	Part No.	Description	Remark
IC1501	8-759-350-29	IC SN104213PM-T6	

< COIL >

Ref. No.	Part No.	Description	Remark
L1501	1-424-653-11	COIL, CHOKE 10uH	
L1502	1-424-653-11	COIL, CHOKE 10uH	
L1503	1-424-653-11	COIL, CHOKE 10uH	
L1504	1-424-674-11	COIL, CHOKE 22uH	
L1505	1-424-675-11	COIL, CHOKE 33uH	
L1506	1-424-674-11	COIL, CHOKE 22uH	
L1507	1-424-674-11	COIL, CHOKE 22uH	
L1508	1-412-056-11	INDUCTOR CHIP 4.7uH	
L1509	1-412-056-11	INDUCTOR CHIP 4.7uH	
L1510	1-412-056-11	INDUCTOR CHIP 4.7uH	
L1511	1-412-066-21	INDUCTOR CHIP 220uH	
L1512	1-424-674-11	COIL, CHOKE 22uH	
L1513	1-412-060-11	INDUCTOR CHIP 22uH	
L1514	1-412-056-11	INDUCTOR CHIP 4.7uH	
L1515	1-412-060-11	INDUCTOR CHIP 22uH	
L1516	1-412-056-11	INDUCTOR CHIP 4.7uH	

< FUSE >

Ref. No.	Part No.	Description	Remark
⚠PS1501	1-533-709-11	FUSE (SMD) (1.25A)	
⚠PS1502	1-533-709-11	FUSE (SMD) (1.25A)	
⚠PS1503	1-533-709-11	FUSE (SMD) (1.25A)	
⚠PS1504	1-533-709-11	FUSE (SMD) (1.25A)	
⚠PS1505	1-533-709-11	FUSE (SMD) (1.25A)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

< TRANSISTOR >

Ref. No.	Part No.	Description	Remark
Q1501	8-729-033-14	TRANSISTOR FP107-TL	
Q1502	8-729-033-14	TRANSISTOR FP107-TL	
Q1503	8-729-033-14	TRANSISTOR FP107-TL	
Q1504	8-729-033-14	TRANSISTOR FP107-TL	
Q1505	8-729-030-75	TRANSISTOR 2SK2316-TD	
Q1506	8-729-804-41	TRANSISTOR 2SB1122-S	
Q1507	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1508	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1509	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1510	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1511	8-729-429-18	TRANSISTOR UN9213	
Q1512	8-729-033-14	TRANSISTOR FP107-TL	
Q1513	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1514	8-729-429-18	TRANSISTOR UN9213	
Q1515	8-729-015-60	TRANSISTOR 2SJ316-TD	
Q1518	8-729-429-18	TRANSISTOR UN9213	
Q1519	8-729-030-75	TRANSISTOR 2SK2316-TD	
Q1521	8-729-429-18	TRANSISTOR UN9213	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R1501	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1503	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1504	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1505	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1506	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1507	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R1508	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1509	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1512	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1513	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1514	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1515	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1516	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1517	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1519	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1520	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R1521	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R1522	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1523	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1524	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1525	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1526	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1527	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R1528	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R1529	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1530	1-218-877-11	METAL CHIP 18K 0.50% 1/16W	
R1531	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1532	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1536	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1537	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R1538	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1540	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1541	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1543	1-216-845-11	METAL CHIP 100K 5% 1/16W	

< TRANSFORMER >

Ref. No.	Part No.	Description	Remark
T1501	1-426-938-11	TRANSFORMER, DC/DC CONVERTER	

---

* A-7072-638-A FK-65 (VSLPE) BOARD, COMPLETE
****
(Ref. No. 3,000 Series)

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN151	1-573-917-11	CONNECTOR, FFC/FPC (ZIF) 8P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D151	8-719-057-99	DIODE SML-211YT-T86 (STOP)	
D152	8-719-057-99	DIODE SML-211YT-T86 (REW)	
D153	8-719-057-99	DIODE SML-211YT-T86 (PLAY)	
D154	8-719-057-99	DIODE SML-211YT-T86 (FF)	
D155	8-719-057-99	DIODE SML-211YT-T86 (PAUSE)	
D156	8-719-057-99	DIODE SML-211YT-T86 (REC)	
D157	8-719-057-99	DIODE SML-211YT-T86 (REC)	

< RESISTOR >

Ref. No.	Part No.	Description	Remark
R151	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R152	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R153	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R154	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R155	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R156	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R157	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R159	1-216-812-11	METAL CHIP 180 5% 1/16W	
R160	1-216-812-11	METAL CHIP 180 5% 1/16W	
R161	1-216-817-11	METAL CHIP 470 5% 1/16W	
R162	1-216-812-11	METAL CHIP 180 5% 1/16W	
R163	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R164	1-216-833-11	METAL CHIP 10K 5% 1/16W	

< VARIABLE RESISTOR >

Ref. No.	Part No.	Description	Remark
RV151	1-225-224-11	RES, VAR (ZOOM) 10K	

< SWITCH >

Ref. No.	Part No.	Description	Remark
S151	1-692-112-11	SWITCH, TACTIL (STOP ■)	
S152	1-692-112-11	SWITCH, TACTIL (REW ◀◀)	
S153	1-692-112-11	SWITCH, TACTIL (PLAY ▷)	
S154	1-692-112-11	SWITCH, TACTIL (FF ▶▶)	

Ref.No.	Part No.	Description	Remark
S155	1-692-112-11	SWITCH, TACTIL (PAUSE ▮▮)	
S156	1-692-112-11	SWITCH, TACTIL (REC ●)	
S157	1-692-112-11	SWITCH, TACTIL (REC □)	
S158	1-692-112-11	SWITCH, TACTIL (EDITSEARCH (+))	
S159	1-692-112-11	SWITCH, TACTIL (EDITSEARCH (-))	

Ref.No.	Part No.	Description	Remark
		FP-249 BOARD, COMPLETE (not supplied)	
		**********************	
		(Ref. No. 8,000 Series)	
	1-658-214-11	FP-356 FLEXIBLE BOARD	
	3-965-551-01	HOLDER (S), SENSOR	
	3-965-552-01	HOLDER (T), SENSOR	
		< HALL ELEMENT >	
H001	8-719-033-37	ELEMENT, HALL HW-105C	
H002	8-719-033-37	ELEMENT, HALL HW-105C	
		< TRANSISTOR >	
Q001	8-729-907-25	PHOTO TRANSISTOR PT4850F	
Q002	8-729-907-25	PHOTO TRANSISTOR PT4850F	
		< SWITCH >	
S001	1-692-614-11	SWITCH, PUSH (3 KEY)(REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C. LOCK)	

Ref.No.	Part No.	Description	Remark
	1-658-213-11	FP-355 FLEXIBLE BOARD	
		*********************	
		(Ref. No. 8,000 Series)	
		< DIODE >	
D001	8-719-988-42	DIODE GL453S	

Ref.No.	Part No.	Description	Remark
*	A-7092-796-A	HI-34 (VHL4) BOARD, COMPLETE (TRV81)	
		****************************	
*	A-7092-833-A	HI-34 (VSLP) BOARD, COMPLETE (TRV31)	
		****************************	
*	A-7092-945-A	HI-34 (VMPE) BOARD, COMPLETE (TRV41)	
		****************************	
*	A-7092-949-A	HI-34 (VL4E) BOARD, COMPLETE (TRV51)	
		****************************	
		(Ref. No. 20,000 Series)	

Ref.No.	Part No.	Description	Remark
		< CAPACITOR >	
C501	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TRV41/TRV51/TRV81)
C1951	1-135-091-91	TANTAL. CHIP 1uF 20% 16V	
C1952	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1955	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1956	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1957	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1958	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1959	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1961	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1976	1-162-917-11	CERAMIC CHIP 15PF 5% 50V	
C1977	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1978	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1980	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1981	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1982	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C1984	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1986	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1987	1-104-851-11	TANTAL. CHIP 10uF 20% 10V	
C1988	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1989	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1990	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C2101	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	(TRV81)
C2102	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV81)
C2103	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV81)
C2105	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	(TRV81)
C2106	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV81)
C2107	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	(TRV81)
C2108	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	(TRV81)
C2109	1-162-925-11	CERAMIC CHIP 68PF 5% 50V	(TRV81)
C2110	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV81)
C2111	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	(TRV81)
C2112	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TRV81)
C2113	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	(TRV81)
C2114	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV81)
C2115	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV81)
C2116	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TRV81)
C2117	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV81)
C2118	1-164-156-11	CERAMIC CHIP 0.1uF 25V	(TRV81)
		< CONNECTOR >	
CN501	1-774-602-41	CONNECTOR, BOARD TO BOARD 60P	
CN502	1-766-354-21	CONNECTOR, FFC/FPC 24P	
CN503	1-766-627-21	CONNECTOR, FFC/FPC 16P	
* CN504	1-770-619-11	PIN, CONNECTOR 2P	
		< DIODE >	
D501	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D502	8-719-045-87	DIODE MA4Z082WA-(TX).SO	

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Ref.No.	Part No.	Description	Remark
D503	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D504	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D511	8-719-404-49	DIODE MA111	
⚠D512	8-719-420-51	DIODE MA729	
D514	8-719-404-49	DIODE MA111	
D1951	8-719-404-49	DIODE MA111	
D1952	8-719-404-49	DIODE MA111	
D1953	8-719-404-49	DIODE MA111	
D1954	8-719-420-51	DIODE MA729	
D1955	8-719-420-51	DIODE MA729	
D1956	8-719-421-27	DIODE MA728	
D1957	8-719-404-49	DIODE MA111	
		< FERRITE BEAD >	
FB501	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB502	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB503	1-414-228-11	INDUCTOR, FERRITE BEAD	
		< IC >	
IC128	8-759-421-52	IC MB87B110CPFV-G-BND-ER (TRV81)	
IC1951	8-759-298-10	IC S-8423NFS-T2	
IC1952	8-759-399-21	IC S579107PZ-TEB (TRV51)	
IC1952	8-759-399-25	IC S579108PZ-TEB (TRV31/TRV41/TRV81)	
IC1954	8-759-355-95	IC S-29L253AFS-TB	
IC1955	8-759-059-05	IC TL1596CPW-ELM1000	
		< COIL >	
L1951	1-414-078-11	INDUCTOR 10uH	
L2101	1-414-078-11	INDUCTOR 10uH (TRV81)	
L2102	1-412-950-11	INDUCTOR 8.2uH (TRV81)	
L2103	1-414-078-11	INDUCTOR 10uH (TRV81)	
L2104	1-414-078-11	INDUCTOR 10uH (TRV81)	
L2105	1-410-658-31	INDUCTOR CHIP220uH (TRV81)	
		< TRANSISTOR >	
Q501	8-729-425-50	TRANSISTOR 2SB1462Q(TRV41/TRV51/TRV81)	
Q502	8-729-428-88	TRANSISTOR UN9113 (TRV81)	
Q503	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q504	8-729-429-18	TRANSISTOR UN9213	
Q506	8-729-429-18	TRANSISTOR UN9213	
Q507	8-729-429-18	TRANSISTOR UN9213	
Q508	8-729-429-32	TRANSISTOR UN9210-QRS	
Q1951	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1952	8-729-015-66	TRANSISTOR 2SC4919-TL	
Q1953	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1954	8-729-032-00	TRANSISTOR 2SJ381-TD	
Q1959	8-729-032-62	TRANSISTOR 2SJ347-TE85L	
Q1963	8-729-024-48	TRANSISTOR 2SK1830-TE85L	
Q2101	8-729-425-64	TRANSISTOR 2SD2216Q (TRV81)	
Q2102	8-729-425-64	TRANSISTOR 2SD2216Q (TRV81)	

Ref.No.	Part No.	Description	Remark
Q2103	8-729-425-64	TRANSISTOR 2SD2216Q (TRV81)	
Q2104	8-729-037-59	TRANSISTOR UN9111J-(TX).SO (TRV81)	
Q2105	8-729-425-64	TRANSISTOR 2SD2216Q (TRV81)	
		< RESISTOR >	
R504	1-216-864-11	METAL CHIP 0 5% 1/16W	
R505	1-216-864-11	METAL CHIP 0 5% 1/16W	
R506	1-216-864-11	METAL CHIP 0 5% 1/16W	
R507	1-216-864-11	METAL CHIP 0 5% 1/16W	
R508	1-216-864-11	METAL CHIP 0 5% 1/16W	
R509	1-216-864-11	METAL CHIP 0 5% 1/16W	
R517	1-216-864-11	METAL CHIP 0 5% 1/16W	
R518	1-216-817-11	METAL CHIP 470 5% 1/16W	(TRV81)
R519	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV81)
R519	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TRV31/TRV41/TRV51)
R520	1-216-819-11	METAL CHIP 680 5% 1/16W	
R521	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TRV41/TRV51/TRV81)
R522	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R523	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TRV41/TRV51/TRV81)
R525	1-216-819-11	METAL CHIP 680 5% 1/16W	
R526	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R528	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV81)
R528	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV31/TRV41/TRV51)
R529	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV31)
R529	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV41/TRV51)
R529	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV81)
R530	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R531	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R532	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TRV31)
R533	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV31/TRV41/TRV51)
R535	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV31/TRV41/TRV51)
R536	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV31/TRV41/TRV51)
R537	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV31/TRV41/TRV51)
R538	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV31/TRV41/TRV51)
R539	1-216-864-11	METAL CHIP 0 5% 1/16W	
R540	1-216-864-11	METAL CHIP 0 5% 1/16W	
R541	1-216-864-11	METAL CHIP 0 5% 1/16W	
R543	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1953	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1954	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1955	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1956	1-216-845-11	METAL CHIP 100K 5% 1/16W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description				Remark
R1957	1-216-813-11	METAL CHIP	220	5%	1/16W	
R1958	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1959	1-216-295-91	CONDUCTOR, CHIP(2012)				
R1960	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1962	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1963	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1964	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1965	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1966	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1967	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1969	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1970	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1972	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1973	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1974	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1975	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1976	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1977	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1978	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1979	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1980	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1981	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1982	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1983	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1984	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1985	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1986	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1987	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1988	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1991	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1992	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1993	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1994	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1995	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1996	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1997	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1998	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1999	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2000	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2001	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2003	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2004	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2005	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2006	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2007	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2008	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2011	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2012	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2013	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2015	1-219-570-11	METAL GLAZE	10M	5%	1/16W	
R2017	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2018	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2019	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2020	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2021	1-216-849-11	METAL CHIP	220K	5%	1/16W	
R2022	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2023	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2024	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2025	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2026	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2027	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2028	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2029	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2030	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2031	1-216-817-11	METAL CHIP	470	5%	1/16W	
R2032	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2036	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2037	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2038	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R2039	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2040	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R2041	1-216-864-11	METAL CHIP	0	5%	1/16W	
R2044	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2046	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R2047	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R2048	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R2049	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R2101	1-216-838-11	METAL CHIP	27K	5%	1/16W	(TRV81)
R2102	1-216-839-11	METAL CHIP	33K	5%	1/16W	(TRV81)
R2103	1-216-819-11	METAL CHIP	680	5%	1/16W	(TRV81)
R2104	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV81)
R2105	1-216-812-11	METAL CHIP	180	5%	1/16W	(TRV81)
R2108	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	(TRV81)
R2109	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV81)
R2110	1-216-816-11	METAL CHIP	390	5%	1/16W	(TRV81)
R2111	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV81)
R2112	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	(TRV81)
R2113	1-216-820-11	METAL CHIP	820	5%	1/16W	(TRV81)
R2116	1-216-817-11	METAL CHIP	470	5%	1/16W	(TRV81)
R2117	1-216-816-11	METAL CHIP	390	5%	1/16W	(TRV81)
R2119	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	(TRV81)
R2120	1-216-819-11	METAL CHIP	680	5%	1/16W	(TRV81)
R2121	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(TRV81)
R2122	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TRV81)
R2124	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TRV81)
R2127	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TRV81)
R2128	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV81)
R2130	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV81)
R2131	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV81)
R2132	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV81)

Ref. No.	Part No.	Description	Remark
R2133	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV81)
R2134	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV81)
R2151	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R2152	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R2155	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R2162	1-216-845-11	METAL CHIP 100K 5% 1/16W	
		< VIBRATOR >	
X1951	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
X1952	1-579-907-21	VIBRATOR, CERAMIC (20MHz)	
*	A-7072-531-A	LI-53 (VH4C) BOARD, COMPLETE **************************** (Ref. No. 3,000 Series)	
		< BATTERY HOLDER >	
BH101	1-550-104-32	HOLDER, BATTERY	
		< CAPACITOR >	
C101	1-115-156-11	CERAMIC CHIP 1uF 10V	
C102	1-115-156-11	CERAMIC CHIP 1uF 10V	
		< CONNECTOR >	
* CN101	1-770-619-11	PIN, CONNECTOR 2P	
*	A-7072-535-A	MA-262 (VH4C) BOARD, COMPLETE ***************************** (TRV41/TRV51/TRV81)	
*	A-7072-640-A	MA-262 (VSLP) BOARD, COMPLETE (TRV31) ***************************** (Ref. No. 4,000 Series)	
		< CAPACITOR >	
C302	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C303	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV41/TRV51/TRV81)
C314	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C315	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C323	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV41/TRV51/TRV81)
C323	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV31)
C326	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C329	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV41/TRV51/TRV81)
C329	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV31)
C330	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C335	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	

Ref. No.	Part No.	Description	Remark
C336	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C337	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C338	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C339	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C340	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C341	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C342	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C343	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C344	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C345	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TRV41/TRV51/TRV81)
C346	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TRV41/TRV51/TRV81)
C347	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TRV41/TRV51/TRV81)
C348	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C349	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV41/TRV51/TRV81)
C351	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TRV41/TRV51/TRV81)
C354	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV41/TRV51/TRV81)
C355	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C356	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C357	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TRV31)
C357	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV41/TRV51/TRV81)
C358	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	(TRV41/TRV51/TRV81)
C359	1-164-677-11	CERAMIC CHIP 0.033uF 10% 16V	(TRV41/TRV51/TRV81)
C359	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TRV31)
C360	1-164-677-11	CERAMIC CHIP 0.033uF 10% 16V	(TRV41/TRV51/TRV81)
C360	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TRV31)
C361	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV41/TRV51/TRV81)
C362	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	(TRV41/TRV51/TRV81)
C363	1-164-677-11	CERAMIC CHIP 0.033uF 10% 16V	(TRV41/TRV51/TRV81)
C363	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TRV31)
C364	1-164-677-11	CERAMIC CHIP 0.033uF 10% 16V	(TRV41/TRV51/TRV81)
C364	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	(TRV31)
C365	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C366	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C367	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV41/TRV51/TRV81)
C368	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C369	1-162-962-11	CERAMIC CHIP 470PF 10% 50V	
C370	1-164-346-11	CERAMIC CHIP 1uF 16V	
C371	1-164-346-11	CERAMIC CHIP 1uF 16V	

Ref. No.	Part No.	Description	Remark
C372	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C376	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C377	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C378	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
		< CONNECTOR >	
CN301	1-580-055-21	PIN, CONNECTOR 2P	
CN302	1-580-055-21	PIN, CONNECTOR 2P	(TRV41/TRV51/TRV81)
CN303	1-764-522-11	CONNECTOR, FFC/FPC (ZIF) 13P	
		< DIODE >	
D303	8-719-059-73	DIODE CL-150HR-CD-T	
D304	8-719-404-49	DIODE MA111	
D305	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
		< IC >	
IC301	8-759-248-31	IC BA7780KV-E2	
IC303	8-749-012-17	IC RS-140-T	
		< JACK >	
J301	1-568-027-11	JACK, SMALL TYPE 1P (EARPHONES)	(TRV31)
J301	1-691-737-11	JACK (SMALL TYPE)(HEADPHONES)	(TRV41/TRV51/TRV81)
		< RESISTOR >	
R301	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R302	1-216-864-11	METAL CHIP 0 5% 1/16W	
R303	1-216-864-11	METAL CHIP 0 5% 1/16W	
R304	1-216-864-11	METAL CHIP 0 5% 1/16W	
R312	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R314	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R318	1-216-864-11	METAL CHIP 0 5% 1/16W	
R319	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R323	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R328	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R330	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R331	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R332	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TRV41/TRV51/TRV81)
R332	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	(TRV31)
R333	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R334	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R335	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R336	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R337	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R338	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TRV41/TRV51/TRV81)

Ref. No.	Part No.	Description	Remark
R340	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TRV41/TRV51/TRV81)
R341	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R342	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TRV31)
R342	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV41/TRV51/TRV81)
R343	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R344	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R345	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TRV41/TRV51/TRV81)
R346	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TRV41/TRV51/TRV81)
R347	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R348	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV41/TRV51/TRV81)
R349	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TRV41/TRV51/TRV81)
R350	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R351	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R354	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R355	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R356	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R357	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R358	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R362	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R363	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R364	1-216-818-11	METAL CHIP 560 5% 1/16W	
R365	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R370	1-216-805-11	METAL CHIP 47 5% 1/16W	
R371	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TRV31)
R371	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV41/TRV51/TRV81)
R373	1-216-864-11	METAL CHIP 0 5% 1/16W	

Ref. No.	Part No.	Description	Remark
*	A-7072-536-A	MF-292 (VH4C) BOARD, COMPLETE ******************************	(Ref. No. 3,000 Series)
		< CONNECTOR >	
CN121	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN122	1-766-865-21	CONNECTOR, FFC/FPC 5P	
		< RESISTOR >	
R129	1-216-864-11	METAL CHIP 0 5% 1/16W	
R130	1-216-864-11	METAL CHIP 0 5% 1/16W	
R131	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R132	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R133	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
		< VARIABLE RESISTOR >	
RV121	1-241-865-11	RES, VAR, CARBON 10K/10K	
		< SWITCH >	
S121	1-762-651-11	SWITCH, SLIDE (FOCUS)	

Ref. No.	Part No.	Description	Remark
*	A-7092-775-A	PD-65 (VH4C) BOARD, COMPLETE ****************************	(TRV51/TRV81)
*	A-7092-944-A	PD-65 (VSLE) BOARD, COMPLETE ****************************	(TRV31/TRV41) (Ref. No. 4,000 Series)
		< CAPACITOR >	
C901	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C902	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C903	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C904	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C906	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C907	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C908	1-162-959-11	CERAMIC CHIP 330PF 5% 50V	
C909	1-107-687-11	TANTAL. CHIP 3.3uF 20% 20V	
C910	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C912	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C913	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C914	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C915	1-164-363-11	CERAMIC CHIP 560PF 5% 50V	
C917	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C918	1-135-177-21	TANTALUM CHIP 1uF 20% 20V	
C919	1-104-916-11	TANTAL. CHIP 6.8uF 20% 20V	
C920	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C921	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C922	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C923	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C924	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C925	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C951	1-104-914-11	TANTAL. CHIP 22uF 20% 16V	
C952	1-135-211-11	TANTAL. CHIP 6.8uF 20% 6.3V	
C953	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C954	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C955	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C956	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C957	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C958	1-162-920-11	CERAMIC CHIP 27PF 5% 50V	
C959	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C960	1-104-911-11	TANTAL. CHIP 33uF 20% 10V	
C961	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref. No.	Part No.	Description	Remark
C963	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C965	1-164-664-11	CERAMIC CHIP 0.033uF 10% 50V	
⚠C967	1-109-858-11	CERAMIC CHIP 15PF 10% 3KV	(TRV51/TRV81)
⚠C967	1-113-521-11	CERAMIC CHIP 12PF 10% 3KV	(TRV31/TRV41)
		< CONNECTOR >	
CN901	1-774-932-21	CONNECTOR, FFC/FPC (ZIF) 32P	
CN902	1-573-364-11	CONNECTOR, FFC/FPC 24P	
CN951	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P	
		< DIODE >	
D901	8-713-102-80	DIODE 1T369-01-T8A	
D903	8-713-102-80	DIODE 1T369-01-T8A	
D905	8-719-420-90	DIODE MA8051-M	
D954	8-719-404-49	DIODE MA111	
		< IC >	
IC901	8-759-374-39	IC LZ95N934 (TRV31/TRV41)	
IC901	8-759-374-41	IC LZ95N944 (TRV51/TRV81)	
IC902	8-759-359-49	IC NJM3414AV(TE2)	
IC951	8-759-521-35	IC TL5001CD-E2	
IC952	8-759-075-70	IC TA75S393F-TE85R	
		< COIL >	
L901	1-414-078-11	INDUCTOR 10uH	
L902	1-414-078-11	INDUCTOR 10uH	
L903	1-414-078-11	INDUCTOR 10uH	
L904	1-412-951-11	INDUCTOR 10uH (TRV51/TRV81)	
L904	1-412-953-11	INDUCTOR 15uH (TRV31/TRV41)	
L951	1-412-028-11	INDUCTOR CHIP 4.7uH	
L952	1-406-824-11	COIL, CHOKE 22uH	
L953	1-406-924-11	COIL, CHOKE 150uH	
		< TRANSISTOR >	
Q901	8-729-429-18	TRANSISTOR UN9213	
Q902	8-729-425-64	TRANSISTOR 2SD2216Q	
Q903	8-729-425-50	TRANSISTOR 2SB1462Q	
Q904	8-729-428-88	TRANSISTOR UN9113	
Q951	8-729-037-75	TRANSISTOR UN9214J-(TX).S (TRV51/TRV81	
Q951	8-729-429-21	TRANSISTOR UN9214-(TXE)(TRV31/TRV41)	
Q952	8-729-037-60	TRANSISTOR UN9112J-(TX).SO	
Q953	8-729-429-18	TRANSISTOR UN9213	
Q954	8-729-425-64	TRANSISTOR 2SD2216Q	
Q955	8-729-823-84	TRANSISTOR FP102	
Q956	8-729-028-36	TRANSISTOR FX507-TL1	
Q957	8-729-037-60	TRANSISTOR UN9112J-(TX).SO	
Q958	8-729-429-18	TRANSISTOR UN9213	
Q959	8-729-429-18	TRANSISTOR UN9213	
Q960	8-729-429-18	TRANSISTOR UN9213	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
Q961	8-729-425-64	TRANSISTOR 2SD2216Q	
Q962	8-729-425-64	TRANSISTOR 2SD2216Q	
		< RESISTOR >	
R888	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R901	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R902	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R904	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV31/TRV41)
R904	1-216-844-11	METAL CHIP 82K 5% 1/16W	(TRV51/TRV81)
R905	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R906	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R907	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R908	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R909	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R910	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R911	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R912	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R913	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R914	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R915	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R916	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R917	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R918	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R919	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R921	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R922	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R923	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R924	1-218-887-11	METAL CHIP 47K 0.50% 1/16W	
R925	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R926	1-218-895-11	METAL CHIP 100K 0.50% 1/16W	
R927	1-218-889-11	METAL CHIP 56K 0.50% 1/16W	
R928	1-218-905-11	METAL CHIP 270K 0.50% 1/16W	
R929	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R930	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R931	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R932	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R933	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R936	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R937	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R938	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R939	1-414-228-11	INDUCTOR, FERRITE BEAD	
R940	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R941	1-216-864-11	METAL CHIP 0 5% 1/16W	
R942	1-216-864-11	METAL CHIP 0 5% 1/16W	
R944	1-216-864-11	METAL CHIP 0 5% 1/16W	
R945	1-216-864-11	METAL CHIP 0 5% 1/16W	
R946	1-216-864-11	METAL CHIP 0 5% 1/16W	
R947	1-216-813-11	METAL CHIP 220 5% 1/16W	
R948	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R949	1-216-864-11	METAL CHIP 0 5% 1/16W	
R951	1-218-867-11	METAL CHIP 6.8K 0.50% 1/16W	
R952	1-218-881-11	METAL CHIP 27K 0.50% 1/16W	
R953	1-216-818-11	METAL CHIP 560 5% 1/16W	
R954	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R955	1-216-818-11	METAL CHIP 560 5% 1/16W	
R956	1-218-897-11	METAL CHIP 120K 0.50% 1/16W	
R957	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R958	1-218-853-11	METAL CHIP 1.8K 0.50% 1/16W	
R959	1-218-867-11	METAL CHIP 6.8K 0.50% 1/16W	
R960	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R961	1-218-859-11	METAL CHIP 3.3K 0.50% 1/16W	
R962	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R964	1-216-864-11	METAL CHIP 0 5% 1/16W	
R965	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R966	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R967	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R968	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R969	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R970	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R971	1-216-820-11	METAL CHIP 820 5% 1/16W	
R972	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R973	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R974	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R975	1-216-810-11	METAL CHIP 120 5% 1/16W	
R976	1-216-864-11	METAL CHIP 0 5% 1/16W	
R977	1-216-864-11	METAL CHIP 0 5% 1/16W	
R988	1-216-864-11	METAL CHIP 0 5% 1/16W	
R989	1-216-842-11	METAL CHIP 56K 5% 1/16W	(TRV31/TRV41)
R989	1-216-843-11	METAL CHIP 68K 5% 1/16W	(TRV51/TRV81)
R990	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R991	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R995	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R996	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R997	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R998	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R999	1-216-838-11	METAL CHIP 27K 5% 1/16W	
		< SWITCH >	
S991	1-692-088-41	SWITCH, TACTILE (BRIGHT (+))	
S992	1-692-088-41	SWITCH, TACTILE (BRIGHT (-))	
S993	1-692-088-41	SWITCH, TACTILE (VOLUME (+))	
S994	1-692-088-41	SWITCH, TACTILE (VOLUME (-))	
S995	1-572-467-21	SWITCH, PUSH (1 KEY)(PANEL MIRROR)	
		< TRANSFORMER >	
T951	1-429-507-11	TRANSFORMER, INVERTER	

Ref. No.	Part No.	Description	Remark
*	A-7092-774-A	SD-20 (VH4C) BOARD, COMPLETE ****************************	(TRV41/TRV81)
*	A-7092-797-A	SD-20 (VHL4) BOARD, COMPLETE ****************************	(TRV51)
*	A-7092-943-A	SD-20 (VSLE) BOARD, COMPLETE ****************************	(TRV31)

(Ref. No. 4,000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description	Remark
C002	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C003	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C004	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C005	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C006	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C007	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C008	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C009	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C010	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C011	1-113-985-11	TANTAL. CHIP 10uF 20% 20V	
C012	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C013	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C014	1-162-928-11	CERAMIC CHIP 120PF 5% 50V	
C015	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C016	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C017	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C018	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C019	1-113-986-11	TANTAL. CHIP 2.2uF 20% 25V	
C020	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
C021	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	
C022	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C023	1-135-211-11	TANTAL. CHIP 6.8uF 20% 6.3V	
C024	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C025	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C027	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C028	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C029	1-163-033-91	CERAMIC CHIP 0.022uF 50V	
C030	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C031	1-162-961-11	CERAMIC CHIP 330PF 10% 50V	
C032	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C035	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C036	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C037	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C038	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TRV41/TRV51/TRV81)
C039	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	(TRV41/TRV51/TRV81)
C040	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	
C041	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C044	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C045	1-164-005-11	CERAMIC CHIP 0.47uF 25V	
C046	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C047	1-164-346-11	CERAMIC CHIP 1uF 16V	
C048	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TRV31)
C054	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C057	1-113-985-11	TANTAL. CHIP 10uF 20% 20V	
C802	1-162-924-11	CERAMIC CHIP 56PF 5% 50V	
C803	1-165-112-11	CERAMIC CHIP 0.33uF 16V	
C804	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C806	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C807	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C809	1-164-471-11	CERAMIC CHIP 680PF 5% 50V	
C811	1-135-180-21	TANTALUM CHIP 3.3uF 20% 6.3V	
C812	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C813	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C815	1-104-752-11	TANTAL. CHIP 33uF 20% 6.3V	
C816	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C818	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C819	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C820	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C824	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C827	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C830	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C831	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C832	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C837	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C838	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C841	1-162-913-11	CERAMIC CHIP 8PF 0.5PF 50V	
C843	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C844	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C845	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C846	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C847	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C848	1-104-851-11	TANTAL. CHIP 10uF 20% 10V	
C849	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C850	1-135-333-11	TANTAL. CHIP 1uF 20% 16V	

< CONNECTOR >

Ref. No.	Part No.	Description	Remark
CN003	1-766-340-21	CONNECTOR, FFC/FPC 10P	
CN004	1-766-354-21	CONNECTOR, FFC/FPC 24P	
CN005	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN006	1-766-759-11	CONNECTOR, FFC/FPC 4P	
CN007	1-774-641-21	CONNECTOR, FFC/FPC 18P	
CN008	1-580-055-21	PIN, CONNECTOR 2P	
CN801	1-774-932-21	CONNECTOR, FFC/FPC (ZIF) 32P	
CN802	1-764-708-21	CONNECTOR, FFC/FPC (LIF) 9P	

< DIODE >

Ref. No.	Part No.	Description	Remark
D001	8-719-989-33	DIODE FC806	
D003	8-719-404-49	DIODE MA111	

Ref. No.	Part No.	Description	Remark
D004	8-719-914-43	DIODE DAN202K-T-146	
D005	8-719-404-49	DIODE MA111	
D006	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D007	8-719-404-49	DIODE MA111	
D008	8-719-404-49	DIODE MA111	
D803	8-719-421-03	DIODE MA732	
		< IC >	
IC001	8-759-521-35	IC TL5001CD-E2	
IC002	8-759-299-00	IC BA7785FS-E2	
IC801	8-759-079-52	IC TC74VHC08FS(EL)	
IC804	8-759-364-03	IC MB88146PFV-G-BND-ER	
IC805	8-759-374-36	IC IR3Y29A4	
		< COIL >	
L001	1-412-746-11	INDUCTOR CHIP 10uH	
L002	1-412-064-11	INDUCTOR CHIP 100uH	
L003	1-412-064-11	INDUCTOR CHIP 100uH	
L004	1-412-064-11	INDUCTOR CHIP 100uH	
L801	1-412-963-11	INDUCTOR 100uH	
L802	1-412-962-11	INDUCTOR 82uH	
L803	1-412-030-11	INDUCTOR CHIP 22uH	
L804	1-412-962-11	INDUCTOR 82uH	
L806	1-414-078-11	INDUCTOR 10uH	
		< IC LINK >	
⚠PS001	1-576-122-21	LINK, IC (0.4A)	
		< TRANSISTOR >	
Q001	8-729-804-41	TRANSISTOR 2SB1122-S	
Q002	8-729-425-64	TRANSISTOR 2SD2216Q	
Q003	8-729-428-88	TRANSISTOR UN9113	
Q004	8-729-429-18	TRANSISTOR UN9213	
Q005	8-729-425-50	TRANSISTOR 2SB1462Q	
Q006	8-729-429-18	TRANSISTOR UN9213	
Q007	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q008	8-729-015-60	TRANSISTOR 2SJ316-TD	
Q009	8-729-429-18	TRANSISTOR UN9213	
Q012	8-729-425-50	TRANSISTOR 2SB1462Q	
Q013	8-729-425-50	TRANSISTOR 2SB1462Q	
Q014	8-729-425-64	TRANSISTOR 2SD2216Q	
Q802	8-729-425-64	TRANSISTOR 2SD2216Q	
Q803	8-729-429-18	TRANSISTOR UN9213	
Q804	8-729-429-18	TRANSISTOR UN9213	
Q805	8-729-429-18	TRANSISTOR UN9213	
Q806	8-729-425-50	TRANSISTOR 2SB1462Q	
Q807	8-729-429-18	TRANSISTOR UN9213	
Q808	8-729-429-18	TRANSISTOR UN9213	
Q809	8-729-429-18	TRANSISTOR UN9213	
Q818	8-729-425-64	TRANSISTOR 2SD2216Q	

Ref. No.	Part No.	Description	Remark
		< RESISTOR >	
R001	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R002	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R003	1-218-865-11	METAL CHIP 5.6K 0.50% 1/16W	
R004	1-218-887-11	METAL CHIP 47K 0.50% 1/16W	
R007	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R008	1-218-897-11	METAL CHIP 120K 0.50% 1/16W	
R009	1-216-819-11	METAL CHIP 680 5% 1/16W	
R011	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R012	1-216-819-11	METAL CHIP 680 5% 1/16W	
R013	1-216-298-00	METAL CHIP 2.2 5% 1/10W	
R015	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R016	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R017	1-216-864-11	METAL CHIP 0 5% 1/16W	
R019	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R020	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R021	1-218-875-11	METAL CHIP 15K 0.50% 1/16W	
R022	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R024	1-216-809-11	METAL CHIP 100 5% 1/16W	
R025	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R026	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R028	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R029	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R030	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R031	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R032	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R033	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R034	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R035	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R036	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R037	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R038	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R039	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R041	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R043	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R044	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R045	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R046	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R047	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R048	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R049	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R050	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R051	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R052	1-216-810-11	METAL CHIP 120 5% 1/16W	(TRV41/TRV51/TRV81)
R053	1-216-810-11	METAL CHIP 120 5% 1/16W	
R055	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV41/TRV51/TRV81)
R056	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R057	1-216-835-11	METAL CHIP 15K 5% 1/16W	

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Ref.No.	Part No.	Description				Remark
R059	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R062	1-216-838-11	METAL CHIP	27K	5%	1/16W	(TRV41/TRV81)
R064	1-216-864-11	METAL CHIP	0	5%	1/16W	
R071	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R072	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R073	1-218-885-11	METAL CHIP	39K	0.50%	1/16W	
R074	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R075	1-218-855-11	METAL CHIP	2.2K	0.50%	1/16W	
R076	1-218-897-11	METAL CHIP	120K	0.50%	1/16W	
R085	1-216-864-11	METAL CHIP	0	5%	1/16W	
R089	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R801	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R803	1-216-817-11	METAL CHIP	470	5%	1/16W	
R804	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R805	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R806	1-216-817-11	METAL CHIP	470	5%	1/16W	
R807	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R808	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R809	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R810	1-216-864-11	METAL CHIP	0	5%	1/16W	
R811	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R812	1-218-855-11	METAL CHIP	2.2K	0.50%	1/16W	
R813	1-216-818-11	METAL CHIP	560	5%	1/16W	
R815	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R816	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R817	1-218-877-11	METAL CHIP	18K	0.50%	1/16W	
R818	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R819	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R822	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R823	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R824	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R829	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R830	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R833	1-216-864-11	METAL CHIP	0	5%	1/16W	
R834	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R835	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R837	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R839	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R840	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R841	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R842	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R846	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R849	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R850	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R851	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R852	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R855	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R856	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R857	1-216-809-11	METAL CHIP	100	5%	1/16W	

Ref.No.	Part No.	Description				Remark
R858	1-216-809-11	METAL CHIP	100	5%	1/16W	
R859	1-216-809-11	METAL CHIP	100	5%	1/16W	
R860	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R861	1-216-843-11	METAL CHIP	68K	5%	1/16W	
R862	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R863	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R864	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R871	1-218-859-11	METAL CHIP	3.3K	0.50%	1/16W	
R873	1-216-864-11	METAL CHIP	0	5%	1/16W	
R874	1-216-864-11	METAL CHIP	0	5%	1/16W	
R876	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R877	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R878	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R879	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R880	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R881	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R882	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R889	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R890	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R891	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R892	1-216-838-11	METAL CHIP	27K	5%	1/16W	

< SWITCH >

Ref.No.	Part No.	Description	Remark
S002	1-692-111-11	SWITCH, KEY BOARD (BRIGHT)	
S003	1-692-111-11	SWITCH, KEY BOARD (PICTURE EFFECT)	
S004	1-692-111-11	SWITCH, KEY BOARD (MENU)	
S005	1-692-111-11	SWITCH, KEY BOARD (DISPLAY)	
S006	1-692-111-11	SWITCH, KEY BOARD (END SEARCH)	
S007	1-692-111-11	SWITCH, KEY BOARD (DATE)	
S008	1-692-111-11	SWITCH, KEY BOARD (PROGRAM AE)	
S010	1-692-111-11	SWITCH, KEY BOARD (FADER)	
S012	1-692-280-11	SWITCH, PUSH (1 KEY)(PANEL CLOSE)	
S013	1-692-111-11	SWITCH, KEY BOARD (TIME)	
S014	1-692-111-11	SWITCH, KEY BOARD (BACK LIGHT)	
S015	1-692-111-11	SWITCH, KEY BOARD (COUNTER RESET)	
S016	1-692-111-11	SWITCH, KEY BOARD (TITLE)	
S017	1-692-111-11	SWITCH, KEY BOARD (16:9 WIDE)	(TRV41/TRV51/TRV81)
S021	1-762-649-11	SWITCH, ROTARY (CONTROL)	
S022	1-762-648-21	SWITCH, SLIDE (START/STOP MODE)	
S023	1-762-650-21	SWITCH, SLIDE (STEADY SHOT)	(TRV41/TRV81)

< TRANSFORMER >

Ref.No.	Part No.	Description	Remark
⚠T001	1-429-459-21	TRANSFORMER, DC-DC CONVERTER	

< VIBRATOR >

Ref.No.	Part No.	Description	Remark
X801	1-579-466-11	VIBRATOR, CRYSTAL (3.579545MHz)	

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Ref. No.	Part No.	Description	Remark
*	A-7072-532-A	SE-50 (VH4C) BOARD, COMPLETE	
		****************************	
			(TRV41/TRV81)
			(Ref. No. 3,000 Series)
		< CAPACITOR >	
C451	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C452	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C453	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C454	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C455	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C456	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C457	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	
C458	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C459	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C460	1-128-257-21	ELECT CHIP 33uF 20% 10V	
C461	1-128-257-21	ELECT CHIP 33uF 20% 10V	
C462	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C467	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	
C468	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C469	1-115-156-11	CERAMIC CHIP 1uF 10V	
		< CONNECTOR >	
CN451	1-766-342-21	CONNECTOR, FFC/FPC 12P	
		< IC >	
IC451	8-759-080-34	IC TA75W01FU-TE12R	
IC452	8-759-058-45	IC NJM3403AV(TE2)	
IC453	8-759-234-77	IC TC4S66F	
IC454	8-759-234-77	IC TC4S66F	
IC455	8-759-248-78	IC MB88102PFV-G-BND-ER	
		< COIL >	
L451	1-414-078-11	INDUCTOR 10uH	
L452	1-414-078-11	INDUCTOR 10uH	
		< RESISTOR >	
R451	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R452	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R453	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R454	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R455	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R456	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R457	1-216-803-11	METAL CHIP 33 5% 1/16W	
R458	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R459	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R460	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R461	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R462	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R463	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	
R464	1-216-833-11	METAL CHIP 10K 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R465	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R466	1-216-850-11	METAL CHIP 270K 5% 1/16W	
R467	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R468	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R470	1-216-864-11	METAL CHIP 0 5% 1/16W	
R472	1-216-864-11	METAL CHIP 0 5% 1/16W	
		< SENSOR >	
SE451	1-810-889-71	SENSOR, ANGULAR VELOCITY	
SE452	1-810-889-81	SENSOR, ANGULAR VELOCITY	

Ref. No.	Part No.	Description	Remark
*	A-7092-911-A	VC-177 (VM) BOARD, COMPLETE (TRV41)	
		***************************	
*	A-7092-940-A	VC-177 (VH4) BOARD, COMPLETE (TRV81)	
		****************************	
*	A-7092-942-A	VC-177 (VSLE) BOARD, COMPLETE (TRV31)	
		*****************************	
*	A-7092-948-A	VC-177 (VL4E) BOARD, COMPLETE (TRV51)	
		*****************************	
			(Ref. No. 10,000 Series)
		< CAPACITOR >	
C251	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C252	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C253	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C254	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C255	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C256	1-163-989-11	CERAMIC CHIP 0.033uF 10% 25V	
C258	1-104-752-11	TANTAL. CHIP 33uF 20% 6.3V	
C259	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C260	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C261	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C262	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C263	1-115-156-11	CERAMIC CHIP 1uF 10V	
C266	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C267	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C268	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C269	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C271	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C274	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C276	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C574	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C576	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C577	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
			(TRV41/TRV51/TRV81)
C609	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C610	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C651	1-115-156-11	CERAMIC CHIP 1uF 10V	

Ref.No.	Part No.	Description	Remark
C653	1-164-346-11	CERAMIC CHIP 1uF 16V	
C1002	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C1003	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C1004	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C1005	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C1006	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1007	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1008	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1009	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1010	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1011	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1012	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1013	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1014	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1018	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1019	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1020	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1021	1-104-852-11	TANTAL. CHIP 22uF 20% 6.3V	
C1022	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1023	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1024	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1025	1-104-852-11	TANTAL. CHIP 22uF 20% 6.3V	
C1026	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1027	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1029	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C1030	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1034	1-104-852-11	TANTAL. CHIP 22uF 20% 6.3V	
C1035	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1036	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1038	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1039	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1040	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C1042	1-162-921-11	CERAMIC CHIP 33PF 5% 50V	
C1044	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C1045	1-162-958-11	CERAMIC CHIP 270PF 5% 50V	
C1046	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	(TRV81)
C1047	1-162-921-11	CERAMIC CHIP 33PF 5% 50V	(TRV81)
C1048	1-162-922-11	CERAMIC CHIP 39PF 5% 50V	(TRV81)
C1049	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	(TRV81)
C1050	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	(TRV81)
C1051	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1052	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C1053	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1054	1-162-925-11	CERAMIC CHIP 68PF 5% 50V	
C1055	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1056	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C1057	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V	
C1058	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1061	1-162-959-11	CERAMIC CHIP 330PF 5% 50V	
C1062	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref.No.	Part No.	Description	Remark
C1063	1-162-921-11	CERAMIC CHIP 33PF 5% 50V	(TRV41/TRV51/TRV81)
C1063	1-162-922-11	CERAMIC CHIP 39PF 5% 50V	(TRV31)
C1064	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C1066	1-162-920-11	CERAMIC CHIP 27PF 5% 50V	
C1067	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	
C1068	1-162-907-11	CERAMIC CHIP 2PF 0.25PF 50V	
C1069	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1070	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1071	1-162-928-11	CERAMIC CHIP 120PF 5% 50V	
C1072	1-162-928-11	CERAMIC CHIP 120PF 5% 50V	
C1075	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1076	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1151	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1152	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C1153	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C1154	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C1156	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1157	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1160	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1161	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1162	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1163	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1164	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1165	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C1166	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1167	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1168	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1173	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1201	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C1203	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C1204	1-164-392-11	CERAMIC CHIP 390PF 5% 50V	
C1205	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1206	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C1207	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1208	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1209	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1210	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1212	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1213	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C1215	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C1216	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1217	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C1218	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1219	1-135-149-21	TANTALUM CHIP 2.2uF 20% 10V	
C1220	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V	
C1222	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1223	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1224	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C1227	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1228	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	

Ref.No.	Part No.	Description				Remark
C1229	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1230	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1231	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C1232	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C1233	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C1234	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1236	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1237	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1240	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1280	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V	(TRV31)
C1280	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	(TRV41/TRV51/TRV81)
C1282	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1283	1-162-920-11	CERAMIC CHIP	27PF	5%	50V	(TRV31)
C1283	1-162-922-11	CERAMIC CHIP	39PF	5%	50V	(TRV41/TRV51/TRV81)
C1284	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1285	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1301	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1302	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	
C1306	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1307	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1308	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C1309	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	(TRV81)
C1310	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	
C1311	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1312	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TRV81)
C1313	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1314	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C1315	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1317	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1318	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C1319	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1320	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1321	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1322	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V	
C1323	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C1324	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1326	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	
C1327	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1328	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	
C1330	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TRV81)
C1331	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TRV81)
C1332	1-126-246-11	ELECT CHIP	220uF	20%	4V	(TRV81)
C1333	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C1334	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C1335	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1337	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C1338	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1339	1-135-201-11	TANTALUM CHIP	10uF	20%	4V	
C1340	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1342	1-164-217-11	CERAMIC CHIP	150PF	5%	50V	
C1343	1-162-922-11	CERAMIC CHIP	39PF	5%	50V	
C1344	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C1345	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C1346	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C1347	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	
C1361	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	
C1363	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C1366	1-115-156-11	CERAMIC CHIP	1uF		10V	
C1402	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	(TRV41/TRV51/TRV81)
C1403	1-104-908-11	TANTAL. CHIP	47uF	20%	4V	(TRV41/TRV51/TRV81)
C1404	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TRV41/TRV51/TRV81)
C1405	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TRV41/TRV51/TRV81)
C1406	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	(TRV41/TRV51/TRV81)
C1407	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TRV41/TRV51/TRV81)
C1408	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TRV41/TRV51/TRV81)
C1408	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	(TRV31)
C1409	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	(TRV41/TRV51/TRV81)
C1409	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	(TRV31)
C1410	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1411	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TRV41/TRV51/TRV81)
C1411	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	(TRV31)
C1412	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	(TRV41/TRV51/TRV81)
C1414	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TRV41/TRV51/TRV81)
C1414	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV31)
C1415	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TRV41/TRV51/TRV81)
C1416	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	(TRV41/TRV51/TRV81)
C1417	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TRV41/TRV51/TRV81)
C1421	1-164-156-11	CERAMIC CHIP	0.1uF		25V	
C1422	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TRV41/TRV51/TRV81)
C1423	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	(TRV41/TRV51/TRV81)
C1423	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	(TRV31)
C1424	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C1425	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TRV41/TRV51/TRV81)
C1425	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V	(TRV31)

Ref.No.	Part No.	Description	Remark
C1426	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	(TRV41/TRV51/TRV81)
C1426	1-135-157-21	TANTALUM CHIP 10uF 20% 6.3V	(TRV31)
C1427	1-107-823-11	CERAMIC CHIP 0.47uF 10% 16V	(TRV41/TRV51/TRV81)
C1429	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	(TRV41/TRV51/TRV81)
C1430	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	(TRV41/TRV51/TRV81)
C1431	1-135-151-21	TANTALUM CHIP 4.7uF 20% 4V	
C1432	1-104-908-11	TANTAL. CHIP 47uF 20% 4V	(TRV41/TRV51/TRV81)
C1432	1-135-318-11	TANTAL. CHIP 33uF 20% 4V	(TRV31)
C1433	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C1434	1-164-489-11	CERAMIC CHIP 0.22uF 10% 16V	
C1435	1-104-752-11	TANTAL. CHIP 33uF 20% 6.3V	
C1436	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C1437	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1439	1-104-852-11	TANTAL. CHIP 22uF 20% 6.3V	
C1441	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV41/TRV51/TRV81)
C1444	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV41/TRV51/TRV81)
C1463	1-135-145-11	TANTALUM CHIP 0.47uF 10% 35V	(TRV31)
C1466	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	(TRV31)
C1471	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	(TRV31)
C1471	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV41/TRV51/TRV81)
C1472	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV41/TRV51/TRV81)
C1473	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	(TRV41/TRV51/TRV81)
C1474	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV41/TRV51/TRV81)
C1475	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV41/TRV51/TRV81)
C1476	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV31)
C1477	1-135-151-21	TANTALUM CHIP 4.7uF 20% 4V	(TRV31)
C1479	1-135-151-21	TANTALUM CHIP 4.7uF 20% 4V	(TRV31)
C1601	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C1602	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1604	1-135-214-21	TANTAL. CHIP 4.7uF 20% 20V	
C1605	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1608	1-135-201-11	TANTALUM CHIP 10uF 20% 4V	
C1612	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	(TRV41/TRV81)
C1613	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1615	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1616	1-162-916-11	CERAMIC CHIP 12PF 5% 50V	
C1617	1-135-145-11	TANTALUM CHIP 0.47uF 10% 35V	
C1618	1-164-492-11	CERAMIC CHIP 0.15uF 10% 16V	
C1619	1-135-145-11	TANTALUM CHIP 0.47uF 10% 35V	
C1620	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1621	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1622	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1623	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1624	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1625	1-135-259-11	TANTAL. CHIP 10uF 20% 6.3V	
C1626	1-164-346-11	CERAMIC CHIP 1uF 16V	
C1628	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1629	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1630	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C1631	1-162-919-11	CERAMIC CHIP 22PF 5% 50V	
C1632	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1635	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1651	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV41/TRV81)
C1652	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV41/TRV81)
C1653	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV41/TRV81)
C1654	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1655	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1656	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	(TRV41/TRV81)
C1656	1-162-918-11	CERAMIC CHIP 18PF 5% 50V	(TRV31/TRV51)
C1657	1-135-181-21	TANTALUM CHIP 4.7uF 20% 6.3V	
C1658	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1659	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1665	1-115-156-11	CERAMIC CHIP 1uF 10V	
C1702	1-115-156-11	CERAMIC CHIP 1uF 10V	(TRV41/TRV51/TRV81)
C1703	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV81)
C1751	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1752	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1753	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1754	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1755	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1756	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1757	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C1758	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	
C1760	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1761	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1762	1-162-915-11	CERAMIC CHIP 10PF 0.5PF 50V	
C1763	1-162-911-11	CERAMIC CHIP 6PF 0.5PF 50V	
C1764	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1765	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
C1767	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C1768	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1769	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1770	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1771	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C1772	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	

Ref.No.	Part No.	Description	Remark
C1773	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1774	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1775	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1776	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1777	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1779	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1780	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1781	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C1782	1-162-923-11	CERAMIC CHIP 47PF 5% 50V	
C1851	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1852	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1853	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1854	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1855	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1856	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1857	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1858	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1859	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1860	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1861	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C1862	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1863	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1864	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C1865	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1866	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1867	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1868	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1869	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1870	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1871	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1872	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C1873	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V	
C1874	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1875	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1876	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C1877	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1878	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C1879	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1880	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1882	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1884	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C1886	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
C1887	1-162-957-11	CERAMIC CHIP 220PF 5% 50V	
C1888	1-164-156-11	CERAMIC CHIP 0.1uF 25V	

< CONNECTOR >

Ref.No.	Part No.	Description	Remark
CN101	1-766-341-21	CONNECTOR, FFC/FPC 11P	
CN102	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN103	1-766-342-21	CONNECTOR, FFC/FPC 12P	
CN104	1-766-340-21	CONNECTOR, FFC/FPC 10P	
CN105	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN106	1-691-542-21	CONNECTOR, BOARD TO BOARD 48P	
CN107	1-766-344-21	CONNECTOR, FFC/FPC 14P	
CN108	1-766-353-21	CONNECTOR, FFC/FPC 23P	
CN109	1-691-352-21	CONNECTOR, FFC/FPC (ZIF) 14P	
CN110	1-774-596-41	CONNECTOR, BOARD TO BOARD 60P	
CN111	1-766-350-21	CONNECTOR, FFC/FPC 20P	
CN112	1-750-630-11	CONNECTOR, FFC/FPC (ZIF) 16P	
CN113	1-573-363-21	CONNECTOR, FFC/FPC 23P	
CN201	1-774-641-21	CONNECTOR, FFC/FPC 18P	
CN202	1-766-343-21	CONNECTOR, FFC/FPC 13P (TRV41/TRV81)	
CN205	1-766-340-21	CONNECTOR, FFC/FPC 10P	

< DIODE >

Ref.No.	Part No.	Description	Remark
D384	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D385	8-719-045-87	DIODE MA4Z082WA-(TX).SO	(TRV41/TRV51/TRV81)
D394	8-719-045-87	DIODE MA4Z082WA-(TX).SO	
D651	8-719-404-49	DIODE MA111	
D652	8-719-404-49	DIODE MA111	
D653	8-719-404-49	DIODE MA111	
D1201	8-719-055-86	DIODE KV1470TL1-3	
D1202	8-719-055-86	DIODE KV1470TL1-3	
D1305	8-719-404-49	DIODE MA111	
D1306	8-719-404-49	DIODE MA111	
D1601	8-719-404-49	DIODE MA111	
D1602	8-713-102-28	DIODE 1T379-04-T8A	
D1758	8-719-420-51	DIODE MA729	

< FERRITE BEAD >

Ref.No.	Part No.	Description	Remark
FB1151	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1601	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB1602	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB1603	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1604	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1605	1-500-284-21	INDUCTOR, FERRITE BEAD	
FB1701	1-414-228-11	INDUCTOR, FERRITE BEAD	(TRV41/TRV51/TRV81)

< IC >

Ref.No.	Part No.	Description	Remark
IC101	8-752-075-31	IC CXA2012R-T4	
IC102	8-759-357-62	IC MB87B108DPFV-G-BND-ER	
IC103	8-752-356-45	IC CXD2301Q-T4	
IC104	8-759-357-65	IC uPD6466GS-604-GLG-E2	
IC105	8-759-357-64	IC CF45819BPZ-TEB	
IC106	8-759-387-35	IC HG51CS276TETL	
IC108	8-759-290-12	IC M62370GP-650D	
IC109	8-759-368-08	IC AN2980FH-EB (TRV41/TRV51/TRV81)	
IC109	8-759-368-09	IC LA7457W-TBM (TRV31)	
IC114	8-752-380-17	IC CXD2177R-T6 (TRV41/TRV51/TRV81)	
IC115	8-752-379-65	IC CXD2178R-T6 (TRV81)	

Ref.No.	Part No.	Description	Remark
IC116	8-759-365-53	IC S-29L353AFS-TB	
IC117	8-752-873-81	IC CXP912032-013R-T6	
IC118	8-759-058-62	IC TC7S08FU(TE85R)	
IC119	8-759-058-62	IC TC7S08FU(TE85R)	
IC120	8-759-356-30	IC XR1083ACQ-E2	
IC121	8-759-327-67	IC LB1950V-TLM	
IC122	8-759-327-61	IC LB8112V-TLM	
IC129	8-759-357-63	IC AN2220FH-EB	
IC130	8-759-058-58	IC TC7S04FU(TE85R)	
IC151	8-759-331-07	IC AD43021-REEL (TRV31/TRV51)	
IC151	8-759-335-30	IC HD49315AFEB (TRV41/TRV81)	
IC152	8-752-377-12	IC CXD2175R-T6	
IC202	8-752-377-92	IC CXD2485R-T4	
IC203	8-752-073-11	IC CXA2006Q-T4	
IC251	8-759-075-97	IC LM358PW-ELM15	
IC251	8-759-337-40	IC NJM2904V(TE2)	
IC252	8-759-247-07	IC MPC17A34VMEL	
IC252	8-759-351-46	IC MPC17A34RVMEL	
IC253	8-759-059-03	IC LM324PW-ELL20	
IC253	8-759-337-41	IC NJM2902V(TE2)	
IC253	8-759-338-78	IC BA10324AFV-E2	
IC255	8-752-377-38	IC CXD2430N-T4	

< COIL >

Ref.No.	Part No.	Description	Remark
L251	1-414-078-11	INDUCTOR 10uH	
L252	1-414-078-11	INDUCTOR 10uH	
L253	1-412-058-11	INDUCTOR CHIP 10uH	
L1001	1-412-952-11	INDUCTOR 12uH	
L1002	1-412-066-21	INDUCTOR CHIP 220uH	
L1002	1-414-275-11	INDUCTOR 220uH	
L1003	1-412-066-21	INDUCTOR CHIP 220uH	
L1003	1-414-275-11	INDUCTOR 220uH	
L1004	1-412-066-21	INDUCTOR CHIP 220uH	
L1004	1-414-275-11	INDUCTOR 220uH	
L1005	1-414-080-11	INDUCTOR 22uH	
L1006	1-412-957-11	INDUCTOR 33uH	
L1007	1-412-280-31	INDUCTOR 330uH	
L1008	1-412-282-41	INDUCTOR 470uH	
L1009	1-410-657-21	INDUCTOR CHIP 180uH	
L1010	1-412-956-21	INDUCTOR 27uH (TRV81)	
L1011	1-412-949-21	INDUCTOR 6.8uH (TRV81)	
L1012	1-412-951-11	INDUCTOR 10uH (TRV81)	
L1013	1-414-078-11	INDUCTOR 10uH	
L1014	1-410-656-11	INDUCTOR CHIP 150uH	
L1015	1-412-963-11	INDUCTOR 100uH	
L1018	1-410-656-11	INDUCTOR CHIP 150uH	
L1019	1-412-280-31	INDUCTOR 330uH	
L1021	1-412-944-11	INDUCTOR 2.7uH	
L1022	1-412-279-31	INDUCTOR 270uH	
L1151	1-414-078-11	INDUCTOR 10uH	
L1154	1-414-078-11	INDUCTOR 10uH	
L1201	1-414-078-11	INDUCTOR 10uH	
L1202	1-414-078-11	INDUCTOR 10uH	
L1203	1-414-078-11	INDUCTOR 10uH	
L1204	1-412-945-11	INDUCTOR 3.3uH	
L1206	1-414-078-11	INDUCTOR 10uH	
L1207	1-414-078-11	INDUCTOR 10uH	
L1209	1-414-078-11	INDUCTOR 10uH	
L1220	1-412-955-11	INDUCTOR 22uH (TRV41/TRV51/TRV81)	
L1220	1-412-957-11	INDUCTOR 33uH (TRV31)	
L1301	1-414-078-11	INDUCTOR 10uH	
L1303	1-412-939-11	INDUCTOR 1uH	
L1305	1-414-078-11	INDUCTOR 10uH	
L1306	1-414-078-11	INDUCTOR 10uH	
L1307	1-414-078-11	INDUCTOR 10uH	
L1308	1-412-959-11	INDUCTOR 47uH	
L1309	1-412-955-11	INDUCTOR 22uH	
L1402	1-414-078-11	INDUCTOR 10uH	
L1403	1-414-233-21	INDUCTOR, FERRITE BEAD	
L1603	1-412-058-11	INDUCTOR CHIP 10uH	
L1652	1-414-078-11	INDUCTOR 10uH	
L1654	1-414-078-11	INDUCTOR 10uH	
L1751	1-414-078-11	INDUCTOR 10uH	
L1752	1-414-078-11	INDUCTOR 10uH	
L1753	1-414-078-11	INDUCTOR 10uH	
L1754	1-412-961-11	INDUCTOR 68uH	

< TRANSISTOR >

Ref.No.	Part No.	Description	Remark
Q251	8-729-425-64	TRANSISTOR 2SD2216Q	
Q252	8-729-425-64	TRANSISTOR 2SD2216Q	
Q253	8-729-425-50	TRANSISTOR 2SB1462Q	
Q254	8-729-429-18	TRANSISTOR UN9213 (TRV41/TRV81)	
Q572	8-729-428-93	TRANSISTOR UN9115-QRS-(TXE)	
Q578	8-729-429-22	TRANSISTOR UN9215-QRS-(TXE)	
Q579	8-729-429-25	TRANSISTOR UN9216-QRS-(TXE)	
Q580	8-729-429-18	TRANSISTOR UN9213	
Q585	8-729-429-22	TRANSISTOR UN9215-QRS-(TXE) (TRV41/TRV51/TRV81)	
Q586	8-729-428-88	TRANSISTOR UN9113	
Q587	8-729-429-25	TRANSISTOR UN9216-QRS-(TXE) (TRV41/TRV51/TRV81)	
Q590	8-729-428-88	TRANSISTOR UN9113	
Q591	8-729-015-66	TRANSISTOR 2SC4919-TL	
Q592	8-729-015-66	TRANSISTOR 2SC4919-TL (TRV81)	
Q593	8-729-015-66	TRANSISTOR 2SC4919-TL (TRV81)	
Q651	8-729-425-64	TRANSISTOR 2SD2216Q	
Q652	8-729-425-64	TRANSISTOR 2SD2216Q	
Q653	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1001	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q1002	8-729-425-50	TRANSISTOR 2SB1462Q	

Ref. No.	Part No.	Description	Remark
Q1003	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1004	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1005	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1006	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1009	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1010	8-729-429-18	TRANSISTOR UN9213	
Q1013	8-729-429-18	TRANSISTOR UN9213	
Q1014	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1015	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1016	8-729-425-73	TRANSISTOR 2SC4627-C(TXE)	(TRV81)
Q1017	8-729-031-69	TRANSISTOR 2SA1965-TL	(TRV81)
Q1018	8-729-425-50	TRANSISTOR 2SB1462Q	(TRV81)
Q1019	8-729-425-73	TRANSISTOR 2SC4627-C(TXE)	(TRV81)
Q1021	8-729-429-18	TRANSISTOR UN9213	(TRV81)
Q1022	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1023	8-729-807-86	TRANSISTOR 2SB1295-UL5	
Q1024	8-729-429-18	TRANSISTOR UN9213	
Q1027	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1030	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1031	8-729-425-73	TRANSISTOR 2SC4627-C(TXE)	
Q1033	8-729-429-18	TRANSISTOR UN9213	
Q1034	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1035	8-729-031-69	TRANSISTOR 2SA1965-TL	
Q1036	8-729-429-18	TRANSISTOR UN9213	
Q1037	8-729-429-18	TRANSISTOR UN9213	(TRV81)
Q1151	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1201	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1202	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1203	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1220	8-729-429-18	TRANSISTOR UN9213	
Q1221	8-729-429-18	TRANSISTOR UN9213	
Q1222	8-729-428-93	TRANSISTOR UN9115-QRS-(TXE)	
Q1305	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1306	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1361	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1362	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1363	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1364	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1403	8-729-429-18	TRANSISTOR UN9213	(TRV41/TRV51/TRV81)
Q1404	8-729-429-18	TRANSISTOR UN9213	(TRV41/TRV51/TRV81)
Q1405	8-729-429-18	TRANSISTOR UN9213	(TRV41/TRV51/TRV81)
Q1601	8-729-429-18	TRANSISTOR UN9213	
Q1602	8-729-428-88	TRANSISTOR UN9113	
Q1603	8-729-428-88	TRANSISTOR UN9113	
Q1604	8-729-429-18	TRANSISTOR UN9213	
Q1751	8-729-425-64	TRANSISTOR 2SD2216Q	
Q1851	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1852	8-729-425-50	TRANSISTOR 2SB1462Q	
Q1853	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q1854	8-729-425-64	TRANSISTOR 2SD2216Q	

Ref. No.	Part No.	Description	Remark
		< RESISTOR >	
R251	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R252	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R253	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R254	1-216-001-00	METAL CHIP 10 5% 1/10W	
R255	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R256	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R257	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R258	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R259	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R260	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R261	1-216-815-11	METAL CHIP 330 5% 1/16W	
R262	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R263	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R264	1-216-848-11	METAL CHIP 180K 5% 1/16W	
R265	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R266	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R267	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R268	1-218-893-11	METAL CHIP 82K 0.50% 1/16W	
R269	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R270	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R271	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R272	1-216-851-11	METAL CHIP 330K 5% 1/16W	
R273	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R274	1-216-843-11	METAL CHIP 68K 5% 1/16W	
R275	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R276	1-218-883-11	METAL CHIP 33K 0.50% 1/16W	
R294	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV41/TRV81)
R295	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV81)
R298	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV81)
R300	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV81)
R579	1-216-817-11	METAL CHIP 470 5% 1/16W	
R580	1-216-817-11	METAL CHIP 470 5% 1/16W	(TRV41/TRV51/TRV81)
R581	1-216-817-11	METAL CHIP 470 5% 1/16W	
R582	1-216-817-11	METAL CHIP 470 5% 1/16W	(TRV41/TRV51/TRV81)
R583	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TRV41/TRV51/TRV81)
R600	1-216-804-11	METAL CHIP 39 5% 1/16W	
R601	1-216-804-11	METAL CHIP 39 5% 1/16W	(TRV81)
R602	1-216-804-11	METAL CHIP 39 5% 1/16W	(TRV81)
R603	1-216-803-11	METAL CHIP 33 5% 1/16W	(TRV81)
R604	1-216-803-11	METAL CHIP 33 5% 1/16W	(TRV81)
R605	1-216-803-11	METAL CHIP 33 5% 1/16W	
R609	1-216-295-91	CONDUCTOR, CHIP (2012)	

Ref.No.	Part No.	Description	Remark
R610	1-216-295-91	CONDUCTOR, CHIP (2012)	(TRV41/TRV51/TRV81)
R611	1-216-864-11	METAL CHIP 0 5% 1/16W	
R613	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV81)
R614	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV81)
R615	1-216-864-11	METAL CHIP 0 5% 1/16W	
R616	1-216-864-11	METAL CHIP 0 5% 1/16W	
R617	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R619	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TRV81)
R620	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R621	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TRV81)
R622	1-216-864-11	METAL CHIP 0 5% 1/16W	
R651	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R652	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R655	1-216-864-11	METAL CHIP 0 5% 1/16W	
R656	1-216-864-11	METAL CHIP 0 5% 1/16W	
R659	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R660	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R661	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R662	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R663	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R664	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R665	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R666	1-216-864-11	METAL CHIP 0 5% 1/16W	
R668	1-216-864-11	METAL CHIP 0 5% 1/16W	
R702	1-216-864-11	METAL CHIP 0 5% 1/16W	
R703	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R705	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV81)
R705	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV41)
R706	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV41)
R706	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV81)
R706	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV31/TRV51)
R1001	1-216-806-11	METAL GLAZE 56 5% 1/16W	
R1002	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1003	1-216-818-11	METAL CHIP 560 5% 1/16W	
R1004	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1005	1-216-814-11	METAL CHIP 270 5% 1/16W	
R1006	1-216-813-11	METAL CHIP 220 5% 1/16W	
R1007	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1008	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1009	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1010	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1011	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1012	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1013	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1014	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1016	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1017	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R1018	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R1020	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1021	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1023	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1024	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1025	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1026	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1027	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1029	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1030	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1031	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1032	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R1033	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1034	1-218-871-11	METAL CHIP 10K 0.50% 1/16W	
R1035	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1038	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1041	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1044	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R1049	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1053	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1054	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1055	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1056	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1057	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1058	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1059	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV31/TRV41/TRV51)
R1060	1-216-820-11	METAL CHIP 820 5% 1/16W	
R1061	1-216-815-11	METAL CHIP 330 5% 1/16W	(TRV81)
R1062	1-216-815-11	METAL CHIP 330 5% 1/16W	(TRV81)
R1063	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV81)
R1064	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1065	1-216-820-11	METAL CHIP 820 5% 1/16W	(TRV81)
R1066	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV81)
R1067	1-216-818-11	METAL CHIP 560 5% 1/16W	(TRV81)
R1068	1-216-817-11	METAL CHIP 470 5% 1/16W	(TRV81)
R1069	1-216-815-11	METAL CHIP 330 5% 1/16W	(TRV81)
R1070	1-216-815-11	METAL CHIP 330 5% 1/16W	(TRV81)
R1072	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	(TRV81)
R1073	1-216-819-11	METAL CHIP 680 5% 1/16W	
R1074	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R1075	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1076	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1079	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1080	1-216-818-11	METAL CHIP 560 5% 1/16W	
R1081	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1085	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1086	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1088	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1090	1-216-816-11	METAL CHIP 390 5% 1/16W	
R1091	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1093	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	

Ref.No.	Part No.	Description				Remark
R1094	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1095	1-216-815-11	METAL CHIP	330	5%	1/16W	
R1096	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1097	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1098	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1099	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1100	1-216-809-11	METAL CHIP	100	5%	1/16W	
R1104	1-216-295-91	CONDUCTOR, CHIP (2012)				
R1105	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1106	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1108	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1109	1-216-828-11	METAL CHIP	3.9K	5%	1/16W	
R1110	1-216-805-11	METAL CHIP	47	5%	1/16W	
R1111	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1112	1-216-818-11	METAL CHIP	560	5%	1/16W	
R1113	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1114	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R1151	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1152	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R1153	1-216-816-11	METAL CHIP	390	5%	1/16W	
R1154	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1155	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R1156	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R1157	1-216-808-11	METAL CHIP	82	5%	1/16W	
R1159	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1160	1-216-819-11	METAL CHIP	680	5%	1/16W	
R1162	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1163	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R1164	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1165	1-216-809-11	METAL CHIP	100	5%	1/16W	
R1213	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R1215	1-216-809-11	METAL CHIP	100	5%	1/16W	
R1216	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R1217	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1218	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1219	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R1221	1-216-820-11	METAL CHIP	820	5%	1/16W	
R1222	1-216-820-11	METAL CHIP	820	5%	1/16W	
R1223	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1224	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R1225	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1226	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1227	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1228	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R1230	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1231	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1232	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1233	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R1234	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R1235	1-216-864-11	METAL CHIP	0	5%	1/16W	

Ref.No.	Part No.	Description				Remark
R1236	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1237	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1238	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1239	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1240	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1241	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1242	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1246	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1247	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1248	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1249	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1250	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1251	1-216-817-11	METAL CHIP	470	5%	1/16W	(TRV41/TRV51)
R1251	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV31/TRV81)
R1252	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TRV41/TRV51)
R1252	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TRV31/TRV81)
R1253	1-216-819-11	METAL CHIP	680	5%	1/16W	
R1254	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1255	1-216-817-11	METAL CHIP	470	5%	1/16W	
R1256	1-216-816-11	METAL CHIP	390	5%	1/16W	
R1280	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1281	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R1283	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1284	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1285	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1286	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1290	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1292	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1293	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1307	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1308	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1312	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1313	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV81)
R1314	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1315	1-216-815-11	METAL CHIP	330	5%	1/16W	(TRV81)
R1316	1-216-815-11	METAL CHIP	330	5%	1/16W	
R1318	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1319	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R1321	1-218-876-11	METAL CHIP	16K	0.50%	1/16W	
R1322	1-218-847-11	METAL CHIP	1K	0.50%	1/16W	
R1323	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R1324	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R1330	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R1331	1-216-823-11	METAL CHIP	1.5K	5%	1/16W	
R1332	1-216-824-11	METAL CHIP	1.8K	5%	1/16W	
R1333	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1334	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	

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Ref. No.	Part No.	Description	Remark
R1361	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1362	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1363	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R1364	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1365	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R1366	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R1367	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1368	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1370	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R1371	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1402	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	(TRV41/TRV51/TRV81)
R1403	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	
R1404	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TRV41/TRV51/TRV81)
R1404	1-216-863-11	METAL GLAZE 3.3M 5% 1/16W	(TRV31)
R1406	1-218-901-11	METAL CHIP 180K 0.50% 1/16W	(TRV41/TRV51/TRV81)
R1406	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	(TRV31)
R1407	1-218-873-11	METAL CHIP 12K 0.50% 1/16W	(TRV41/TRV51/TRV81)
R1407	1-218-909-11	METAL CHIP 390K 0.50% 1/16W	(TRV31)
R1408	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TRV41/TRV51/TRV81)
R1409	1-216-817-11	METAL CHIP 470 5% 1/16W	(TRV31)
R1409	1-216-820-11	METAL CHIP 820 5% 1/16W	(TRV41/TRV51/TRV81)
R1410	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	(TRV31)
R1410	1-216-845-11	METAL CHIP 100K 5% 1/16W	(TRV41/TRV51/TRV81)
R1415	1-162-925-11	CERAMIC CHIP 68PF 5% 50V	(TRV41/TRV51/TRV81)
R1415	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TRV31)
R1418	1-218-903-11	METAL CHIP 220K 0.50% 1/16W	(TRV41/TRV51/TRV81)
R1419	1-216-813-11	METAL CHIP 220 5% 1/16W	(TRV41/TRV51/TRV81)
R1419	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV31)
R1421	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	(TRV41/TRV51/TRV81)
R1422	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TRV41/TRV51/TRV81)
R1422	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TRV31)
R1423	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV41/TRV51/TRV81)
R1424	1-216-833-11	METAL CHIP 10K 5% 1/16W	(TRV41/TRV51/TRV81)
R1424	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV31)
R1425	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R1426	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R1429	1-218-909-11	METAL CHIP 390K 0.50% 1/16W	(TRV41/TRV51/TRV81)
R1429	1-218-911-11	METAL CHIP 470K 0.50% 1/16W	(TRV31)

Ref. No.	Part No.	Description	Remark
R1430	1-218-909-11	METAL CHIP 390K 0.50% 1/16W	(TRV41/TRV51/TRV81)
R1431	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV31)
R1431	1-216-849-11	METAL CHIP 220K 5% 1/16W	(TRV41/TRV51/TRV81)
R1460	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R1461	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV31)
R1463	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51/TRV81)
R1466	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV41/TRV51/TRV81)
R1472	1-218-855-11	METAL CHIP 2.2K 0.50% 1/16W	(TRV41/TRV51/TRV81)
R1472	1-218-889-11	METAL CHIP 56K 0.50% 1/16W	(TRV31)
R1476	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TRV41/TRV51/TRV81)
R1476	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV31)
R1601	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1603	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R1616	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R1620	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R1621	1-216-803-11	METAL CHIP 33 5% 1/16W	
R1622	1-216-803-11	METAL CHIP 33 5% 1/16W	
R1626	1-216-864-11	METAL CHIP 0 5% 1/16W	
R1628	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1629	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1630	1-216-809-11	METAL CHIP 100 5% 1/16W	
R1632	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R1633	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1651	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV81)
R1652	1-216-840-11	METAL CHIP 39K 5% 1/16W	(TRV41/TRV81)
R1653	1-216-803-11	METAL CHIP 33 5% 1/16W	
R1654	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV31/TRV51)
R1716	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51)
R1717	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51)
R1718	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51)
R1719	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51)
R1720	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51)
R1721	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51)
R1722	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51)
R1723	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV41/TRV51)

Ref.No.	Part No.	Description				Remark
R1724	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV41/TRV51)
R1725	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV41/TRV51)
R1726	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV41/TRV51)
R1727	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV41/TRV51)
R1728	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV41/TRV51)
R1729	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV41/TRV51)
R1730	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV41/TRV51)
R1731	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV31)
R1751	1-216-842-11	METAL CHIP	56K	5%	1/16W	
R1752	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1753	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1759	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1760	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1761	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1762	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1763	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1772	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1773	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1775	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1780	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1781	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1782	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1783	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1784	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1785	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1786	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1787	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1789	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1790	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1791	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1792	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1793	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1794	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1795	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1796	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1798	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1801	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1803	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R1804	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R1805	1-216-856-11	METAL CHIP	820K	5%	1/16W	
R1806	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1807	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1808	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1809	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1810	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	

Ref.No.	Part No.	Description				Remark
R1811	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R1812	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1813	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1814	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1817	1-216-837-11	METAL CHIP	22K	5%	1/16W	(TRV51)
R1817	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TRV31/TRV41)
R1817	1-216-845-11	METAL CHIP	100K	5%	1/16W	(TRV81)
R1818	1-216-845-11	METAL CHIP	100K	5%	1/16W	(TRV31/TRV41/TRV51)
R1820	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1821	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1822	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1823	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1826	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1827	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R1836	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R1851	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1852	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1853	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1855	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1856	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1857	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1859	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1860	1-216-864-11	METAL CHIP	0	5%	1/16W	
R1861	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1862	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1863	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1865	1-216-851-11	METAL CHIP	330K	5%	1/16W	
R1867	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1868	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1869	1-216-019-00	METAL CHIP	56	5%	1/10W	
R1872	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1873	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1874	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1875	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1876	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1877	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R1878	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1880	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R1881	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1882	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1883	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1884	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1887	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R1888	1-216-836-11	METAL CHIP	18K	5%	1/16W	
R1889	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1890	1-217-671-11	METAL CHIP	1	5%	1/10W	
R1891	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R1892	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R1893	1-216-817-11	METAL CHIP	470	5%	1/16W	

Ref. No.	Part No.	Description	Remark
R1894	1-216-817-11	METAL CHIP 470 5% 1/16W	
R1895	1-216-800-11	METAL GLAZE 18 5% 1/16W	
R1896	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R1897	1-216-808-11	METAL CHIP 82 5% 1/16W	
		< THERMISTOR >	
TH1751	1-809-360-21	THERMISTOR, NTC (2125)	
		< VIBRATOR >	
X1305	1-767-028-21	VIBRATOR, CRYSTAL (14MHz)	
X1601	1-760-320-11	VIBRATOR, CRYSTAL (28.636363MHz)	
X1751	1-760-655-41	VIBRATOR, CRYSTAL (20MHz)	
X1752	1-767-030-21	VIBRATOR, CRYSTAL (11.89MHz)	

Ref. No.	Part No.	Description	Remark
*	A-7066-792-A	VF-99 (VHL4) BOARD, COMPLETE **************************** (Ref. No. 7,000 Series)	
		< CAPACITOR >	
C901	1-107-854-11	TANTAL. CHIP 68uF 20% 6.3V	
C902	1-163-038-91	CERAMIC CHIP 0.1uF 25V	
C903	1-135-145-11	TANTALUM CHIP 0.47uF 10% 35V	
C904	1-162-965-11	CERAMIC CHIP 0.0015uF 10% 50V	
C905	1-104-752-11	TANTAL. CHIP 33uF 20% 6.3V	
C906	1-162-638-11	CERAMIC CHIP 1uF 16V	
C907	1-104-563-11	FILM CHIP 0.1uF 5% 16V	
C908	1-162-920-11	CERAMIC CHIP 27PF 5% 50V	
C909	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
⚠C910	1-164-758-11	CERAMIC CHIP 0.0039uF 5% 50V	
⚠C911	1-164-715-11	CERAMIC CHIP 0.0068uF 5% 50V	
C912	1-107-854-11	TANTAL. CHIP 68uF 20% 6.3V	
C913	1-135-145-11	TANTALUM CHIP 0.47uF 10% 35V	
C914	1-107-689-21	TANTAL. CHIP 1uF 20% 35V	
C915	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C916	1-164-611-11	CERAMIC CHIP 0.001uF 10% 500V	
		< CONNECTOR >	
CN901	1-573-506-41	CONNECTOR, FPC (NON ZIF) 4P	
CN902	1-580-057-11	PIN, CONNECTOR 4P	
		< DIODE >	
D901	8-719-951-21	DIODE PR1102W-TR	
D903	8-719-404-49	DIODE MA111	
		< IC >	
IC901	8-759-196-14	IC BA7149F-E2	
		< COIL >	
L901	1-412-031-11	INDUCTOR CHIP 47uH	
L902	1-410-387-11	INDUCTOR CHIP 33uH	
⚠L903	1-411-697-11	COIL, FERRITE (HLC)	
		< TRANSISTOR >	
Q901	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q902	8-729-106-68	TRANSISTOR 2SD1615A-GP	
Q903	8-729-216-31	TRANSISTOR 2SA1163-G	
Q904	8-729-230-63	TRANSISTOR 2SC4116-YG	
		< RESISTOR >	
R901	1-216-817-11	METAL CHIP 470 5% 1/16W	
R902	1-216-817-11	METAL CHIP 470 5% 1/16W	
R903	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R904	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R905	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R906	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R907	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R908	1-216-852-11	METAL CHIP 390K 5% 1/16W	
R909	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R910	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R911	1-216-160-00	METAL GLAZE 27 5% 1/8W	
R912	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R913	1-216-820-11	METAL CHIP 820 5% 1/16W	
R914	1-216-813-11	METAL CHIP 220 5% 1/16W	
R915	1-216-793-11	METAL GLAZE 4.7 5% 1/16W	
R916	1-218-879-11	METAL CHIP 22K 0.50% 1/16W	
R917	1-218-891-11	METAL CHIP 68K 0.50% 1/16W	
R918	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R919	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R920	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R921	1-216-795-11	METAL GLAZE 6.8 5% 1/16W	
R922	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R923	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R924	1-216-862-11	METAL GLAZE 2.7M 5% 1/16W	
R925	1-216-862-11	METAL GLAZE 2.7M 5% 1/16W	
R926	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R927	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R928	1-216-827-11	METAL CHIP 3.3K 5% 1/16W	
R929	1-216-818-11	METAL CHIP 560 5% 1/16W	
		< VARIABLE RESISTOR >	
RV903	1-238-852-11	RES, ADJ, CERMET 470	
RV904	1-223-566-11	RES, ADJ, METAL GLAZE 1M	
		< TRANSFORMER >	
⚠T901	1-453-124-11	TRANSFORMER ASSY, FLYBACK	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		< THERMISTOR >	
TH901	1-809-350-21	THERMISTOR, NTC (2125)	
		< FLEXIBLE BOARD >	
⚠W901	1-540-019-21	SOCKET ASSY, CRT	

MISCELLANEOUS
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Ref. No.	Part No.	Description	Remark
20	1-660-280-11	FP-380 FLEXIBLE BOARD	
24	8-917-540-90	REMOCON RMT-715//M SET (TRV81)	
26	1-467-574-21	REMOTE COMMANDER (RMT-708)(EXCEPT TRV81)	
51	1-660-287-11	FP-388 FLEXIBLE BOARD	
52	1-660-289-11	FP-390 FLEXIBLE BOARD	
53	1-660-291-11	FP-393 FLEXIBLE BOARD	
55	1-660-284-11	FP-385 FLEXIBLE BOARD	
65	1-473-602-11	SWITCH BLOCK, CONTROL (PS-6500)	
71	1-660-290-11	FP-391 FLEXIBLE BOARD	
101	1-660-287-11	FP-388 FLEXIBLE BOARD	
102	1-660-289-11	FP-390 FLEXIBLE BOARD	
103	1-660-291-11	FP-393 FLEXIBLE BOARD	
105	1-660-284-11	FP-385 FLEXIBLE BOARD	
115	1-473-602-11	SWITCH BLOCK, CONTROL (PS-6500)	
121	1-660-290-11	FP-391 FLEXIBLE BOARD	
154	1-473-601-11	SWITCH BLOCK, CONTROL (ZM-6500)	
212	1-660-303-11	FP-395 FLEXIBLE BOARD	
302	1-660-278-11	FP-378 FLEXIBLE BOARD	
308	1-660-279-11	FP-379 FLEXIBLE BOARD	
310	1-660-283-11	FP-383 FLEXIBLE BOARD	
313	1-660-286-11	FP-387 FLEXIBLE BOARD	
315	1-660-281-11	FP-381 FLEXIBLE BOARD	
317	1-660-277-11	FP-377 FLEXIBLE BOARD (TRV41/TRV81)	
321	1-660-288-11	FP-389 FLEXIBLE BOARD	
351	1-660-288-11	FP-389 FLEXIBLE BOARD	
361	1-547-787-61	FILTER BLOCK, OPTICAL (TRV41/TRV81)	
361	1-547-924-11	FILTER BLOCK, OPTICAL (TRV31/TRV51)	
363	1-660-531-11	FP-429 FLEXIBLE BOARD	
401	8-848-710-01	DEVICE, LENS LSV-510A/J-N	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
762	1-657-786-11	FP-221 FLEXIBLE BOARD	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
⚠BL002	1-517-525-11	TUBE, FLUORESCENT, COLD CATHODE (TRV31/TRV41)	
⚠BL002	1-517-526-11	TUBE, FLUORESCENT, COLD CATHODE (TRV51/TRV81)	
CN901	1-774-867-11	CONNECTOR, EXTERNAL (HOT SHOE) 8P	
D001	8-719-988-42	DIODE GL453	
J201	1-537-747-21	TERMINAL BOARD (TRV81)	
J201	1-537-747-31	TERMINAL BOARD (TRV41/TRV51)	
J201	1-537-747-41	TERMINAL BOARD (TRV31)	
J901	1-694-076-11	TERMINAL BOARD, BATTERY	
J902	1-565-276-21	JACK, ULTRA SMALL 1P (LANC)	
J903	1-695-514-11	JACK (SMALL TYPE) 1P (EARPHONE)(TRV31)	
J903	1-695-514-21	JACK (SMALL TYPE) 1P (HEADPHONE) (TRV41/TRV51/TRV81)	
IC401	A-7030-638-A	CCD BLOCK ASSY (079 SERVICE)(CCD IMAGER) (TRV41/TRV81)	
IC401	A-7030-718-A	CCD BLOCK ASSY (086 SERVICE)(CCD IMAGER) (TRV31/TRV51)	
LCD901	1-801-148-21	DISPLAY MODULE, LIQUID CRYSTAL (TRV31/TRV41)	
LCD901	1-801-149-21	DISPLAY MODULE, LIQUID CRYSTAL (TRV51/TRV81)	
M901	A-7048-831-A	DRUM ASSY (DGH-0D1A-R)	
M902	8-835-531-01	MOTOR, DC SCE-0601A (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
M905	1-698-760-01	MOTOR, STEPPING (FOCUS)	
M906	1-698-759-01	MOTOR, STEPPING (ZOOM)	
MIC901	1-542-259-11	MICROPHONE, CAP (Lch or MONO)	
MIC902	1-542-259-11	MICROPHONE, CAP (Rch)(TRV41/TRV51/TRV81)	
S001	1-692-614-11	SWITCH, PUSH (3 KEY) (Hi8 MP, ME/MP, REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C. LOCK)	
S901	1-762-436-11	SWITCH, ROTARY (ENCODER)	
S903	1-571-315-11	SWITCH, KEY BOARD (START/STOP)	
S904	1-553-977-00	SWITCH, SLIDE (STANDBY/STOP)	
SP901	1-504-753-21	SPEAKER (2.8CM)	
⚠V901	1-452-673-31	CRT ASSY (M01KXX90WB)	

ACCESSORIES & PACKING MATERIALS
****

Ref. No.	Part No.	Description	Remark
*	3-972-137-01	CUSHION, ACC	
*	3-972-138-01	CUSHION (LOWER)	
	1-247-743-11	RES, CARBON 220.00 (TRV41:US, CND/TRV81:US, CND)	
	1-467-574-21	REMOTE COMMANDER (RMT-708) (TRV31/TRV41/TRV51)	
⚠	1-569-008-11	ADAPTER, CONVERSION 2P (TRV31/TRV41:E, HK, JE/TRV51/TRV81:E, HK, JE)	
	1-574-039-21	CORD, CONNECTION (A/V connecting cable (MONORAL), 1.5m)(TRV31)	
	1-575-334-11	CORD, CONNECTION (A/V connecting cable (STEREO), 1.5m)(EXCEPT TRV31)	
	3-810-817-21	MANUAL, INSTRUCTION (ENGLISH) (TRV41:US, CND/TRV81:US, CND)	
	3-810-817-31	MANUAL, INSTRUCTION (FRENCH) (TRV41:CND/TRV81:CND)	

Be sure to read "Note on the CCD Imager replacement" on page 4-8 when changing the CCD imager.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
	3-856-103-51	MANUAL, INSTRUCTION (ENGLISH, SPANISH) (TRV31/TRV41:E, HK, JE/TRV51/TRV81:E, HK, JE)	
	3-856-103-61	MANUAL, INSTRUCTION (CHINESE) (TRV31/TRV41:E, HK/TRV51/TRV81:E, HK)	
	3-856-103-81	MANUAL, INSTRUCTION (TRV41:JE/TRV81:JE)	
*	3-971-752-01	INDIVIDUAL CARTON (TRV31/TRV41/TRV51)	
	3-947-969-21	BELT (S), SHOULDER	
	8-917-540-90	REMOCON RMT-715//M SET (TRV81)	
	A-7092-699-A	CASE (L) ASSY, BATTERY (TRV81:CND)	
	A-7092-936-A	CASE (L) ASSY (U), BATTERY (TRV41:US, CND/TRV81:US)	
**	AC-V316	AC POWER ADAPTER	
***	NP-F530	BATTERY PACK	

Note.

** MARK PARTS IS AVAILABLE FOR REPAIR SERVICE.

*** MARK PARTS IS AVAILABLE AS AN OPTIONAL ACCESSORY.

1-1-6. Page E Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page F, Page E Data Initialization" and "Page E Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
00	69	69	69	69	←
01	89	89	89	89	←
02	15	15	15	15	←
03	52	52	52	52	←
04	61	61	61	61	←
05	6C	6C	6C	6C	←
06	93	93	93	93	←
07	AA	AA	AA	AA	←
08	65	65	65	65	←
09	44	44	44	44	←
0A	A2	A2	A2	A2	←
0B	92	92	92	92	←
0C	63	63	63	63	←
0D	68	68	68	68	←
0E	61	61	61	61	←
0F	33	33	33	33	←
10	05	05	05	05	←
11	F3	F3	F3	F3	←
12	EE	EE	EE	EE	←
13	AD	AD	AD	AD	←
14	D9	D9	D9	D9	←
15	20	20	20	20	←
16	2A	2A	2A	2A	←
17	EB	EB	EB	EB	←
18	1F	1F	1F	1F	←
19	0F	0F	0F	0F	←
1A	31	31	31	31	←
1B	20	20	20	20	←
1C	53	53	53	53	←
1D	41	41	41	41	←
1E	F8	F8	F8	F8	←
1F	00	00	00	00	←
20	37	1E	37	1E	←
21	7D	57	7D	57	←
22	9F	73	9F	73	←
23	00	00	00	00	←
24	00	00	00	00	←
25	00	00	00	00	←

Table 6-1-3 (1).

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
26	30	01	30	01	←
27	50	40	50	40	←
28	E0	40	E0	40	←
29	00	00	00	00	←
2A	00	00	00	00	←
2B	00	00	00	00	←
2C	10	10	10	10	←
2D	20	20	20	20	←
2E	25	25	25	25	←
2F	79	79	79	79	←
30	00	00	00	00	←
31	00	00	00	00	←
32	00	00	00	00	←
33	00	00	00	00	←
34	00	00	00	00	←
35	00	00	00	00	←
36	10	10	10	10	←
37	30	30	30	30	←
38	10	10	10	10	←
39	50	50	50	50	←
3A	1C	1C	1C	1C	←
3B	4C	4C	4C	4C	←
3C	25	25	25	25	←
3D	29	29	29	29	←
3E	09	09	09	09	←
3F	07	07	07	07	←
40	CC	CC	CC	CC	←
41	00	00	00	00	←
42	40	40	40	40	←
43	1E	1E	1E	1E	←
44	00	00	00	00	←
45	F8	F8	F8	F8	←
46	30	30	30	30	←
47	10	10	10	10	←
48	04	04	04	04	←
49	04	04	04	04	←
4A	6C	6C	6C	6C	←
4B	00	01	00	01	←
4C	77	70	77	70	←
4D	41	41	41	41	←
4E	02	02	02	02	←
4F	1F	1F	1F	1F	←
50	F8	F8	F8	F8	←
51	F8	F8	F8	F8	←
52	9C	9C	9C	9C	←

Table 6-1-3 (2).

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
53	8E	8E	8E	8E	←
54	74	74	74	74	←
55	5F	5F	5F	5F	←
56	4A	4A	4A	4A	←
57	3F	3F	3F	3F	←
58	2F	2F	2F	2F	←
59	10	10	10	10	←
5A	00	00	00	00	←

Table 6-1-3 (3).

1-1-7. Data Processing

The calculation of the DDS display and the adjusting remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Table 6-1-4. indicates the hexadecimal notation-the decimal notation calculation table.

Hexadecimal notation-Decimal notation

The lower digits of the hexadecimal notation / The upper digits of the hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A (Ᾱ)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (Ᾱ)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
①→ B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: ( ) indicate the adjusting remote control unit display.

(Example) In the case that the DDS display and the adjusting remote control unit display are BD (bd).
As the upper digit of the hexadecimal notation is B (b), and the lower digit is D (d), the intersection "189" of the ① and ② in the above table is the decimal notation to be calculated.

Table 6-1-4.

1-2. CAMERA SYSTEM ADJUSTMENTS

1. Initialization of E, F Page Data

Note: If the E, and F page data has been initialized, the "Modification of F Page Data", and "Modification of E Page Data", "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments" need to be performed again.

Initializing method:

Adjusting page	E
Adjusting address	00 to 5A
Adjusting page	F
Adjusting address	00 to FF

1) Set data: 01 to page: 0, address: 01.
2) Set data: 2D to page: 2, address: 00.
3) Set data: 2D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the data of page: 2, address: 02 is 01.
5) Set data: 00 to page: 0, address: 01.
6) After performing "Modification of E, F Page Data", perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

2. Modification of F Page Data

If the E and F page data has been initialized, change the data as shown in the table on the right by manual input.

Note 1: Before changing the data, set data: 80 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the new data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01. Also perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

Address	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31
00	A5	B3	A7	AB
02	(03)[04]	(03)[04]	(03)[04]	(03)[04]
05	B4	E9	B4	E9
06	B8	B8	B8	B8
07	5E	5E	5E	5E
08	49	2C	49	2C
09	59	3A	59	3A
0A	6B	49	6B	49
0B	8D	64	8D	64
1C	56	50	56	00
1D	00	00	00	00
1E				21
20	00	00	00	00
21	00	00	00	00
27	(40)[41]	(40)[41]	(40)[41]	(40)[41]
28	46	44	44	60
59	CA	CA	CA	CA
5A	D9	D9	D9	D9
5B	DA	DA	DA	DA
61	3A	3A	3A	2F
68	30	30	30	30
69	40	40	40	40
6A	28	28	28	28
6B	00	00	00	00
6C	6A	6A	6A	6A
6F	15	15	15	15
74	79	80	80	80
75	87	80	80	80
7E	94	80	80	80
7F	80	80	80	80
80	A8	A8	A8	A8
82		2C		2C
83	19	19	19	19
87	93		93	
89		83		83
8F	01	01	01	01
90	68	68	68	68
91	80	80	80	80
92	70	70	70	70
93	60	60	60	60
94	68	68	68	68
95	70	70	70	70
96	40	40	40	40
97	2E	2E	2E	2E

Table 6-1-5 (1).

Address	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31
98	58	58	58	58
99	A0	A0	A0	A0
9A	30	30	30	30
9B	14	14	14	14
9C	58	58	58	58
9D	C0	C0	C0	C0
9E	30	30	30	30
9F	26	26	26	26
A0	78	78	78	78
A1	70	70	70	70
A2	4C	4C	4C	4C
A3	06	06	06	06
A4	58	58	58	58
A5	D0	D0	D0	D0
A6	60	60	60	60
A7	0F	0F	0F	0F
A8	62	62	62	62
A9	91	B3	B3	B3
AA	62	62	62	62
AB	A2	A2	A2	A2
AC	62	62	62	62
AD	91	80	80	80
AE	62	62	62	62
AF	A2	A2	A2	A2
B1	E5	E5	E5	E5
B3	F7	F7	F7	F7
B4	40			
B8	21	21	21	21
B9	05	05	05	05
BA	11	11	11	11
BB	06	06	06	06
BC	71	71	71	71
BD	15	15	15	15
BE	20	20	20	20
CF		F0		F0
D1	30	30	30	30
D2	20	20	20	20
DF	00	00	00	00
E0	F7	F7	F7	F7
E1	1A	19	1A	19
E2	33	32	33	32
E3		00	FE	00
E9	4D	4D	4D	4D

Table 6-1-5 (2).

Note: ( ): US, Canadian model
[ ]: E, Hong Kong, Tourist model

3. Modification of E Page Data

If the E and F page data has been initialized, change the data as shown in the following table by manual input.

Note 1: Before changing the data, set data: 01 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the new data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01. Also perform "Camera System Adjustments", "Servo System Adjustments", "Video System Adjustments", and "Audio System Adjustments".

Address	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31
12	EE			
13	AD			
14	D9			
15	20	20	20	20
16	2A	2A	2A	2A
19	0F			
1A	31			
1B	20			
1D	41			
20	37	1E	37	1E
21	7D	57	7D	57
22	9F	73	9F	73
26	30		30	
27	50		50	
28	E0		E0	
36	10	10	10	10
37	30	30	30	30
38	10	10	10	10
39	50	50	50	50
3A	1C	1C	1C	1C
3B	4C	4C	4C	4C
3C	25	25	25	25
3D	29	29	29	29
3E	09	09	09	09
40	CC	CC	CC	CC
41	00	00	00	00
46	30	30	30	30
48	04	04	04	04
4B	00		00	
4C	77		77	
4E	02	02	02	02
50	F8	F8	F8	F8
51	F8	F8	F8	F8

Table 6-1-6.

4. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and hall offset.

Subject	Not required
Measurement Point	DDS display of EVF or monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3B, 3C
Specified Value	13 to 17 during IRIS OPEN (Note 1) 7F to 83 during IRIS CLOSE (Note 2)

Note 1: Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

Note 2: Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 0, address: 03.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 80 to page: F, address: 3C, and press the PAUSE button of the adjusting remote commander.
6) Set data: 40 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
7) Read the DDS display data (the bottom two digits of the display data at the bottom right of the EVF or the monitor TV display), and this data is named W_2.
8) Set data: 30 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
9) Read the DDS display data, and this data is named W_1.
10) Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
11) Read the DDS display data, and this data is named K_1.
12) Set data: 40 to page: F, address: 3B, and press the PAUSE button.
13) Read the DDS display data, and this data is named K_2.
14) Convert W_1, W_2, K_1, K_2 to decimal notation, and obtain W_1', W_2', K_1', K_2'. (Refer to Table 6-1-4. "Hexadecimal notation-decimal notation conversion table".)
15) Calculate X_1' using the following equations (decimal notation calculation).

$$A' = W_2' + K_1' - W_1' - K_2' \text{ .... Equation 1}$$

$$B' = W_1' - K_1' \text{ .... Equation 2}$$

$$X_1' = \frac{1728 + (48 \times A') - (16 \times B')}{A'} \text{ .... Equation 3}$$

16) Convert X_1' to hexadecimal notation, and obtain X_1. (Round off to one decimal place)
17) Set data: X_1 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
18) Change the data of page: F, address: 3C, and adjust the DDS display data to "15".

19) Press the PAUSE button of the adjusting remote commander.
20) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
21) Read the DDS display data, and this data is named W_0. If W0 lies within the "7F" to "83" range, perform "Processing after completing adjustments". If it lies outside the range, perform the following adjustments.
22) Convert W_0 to decimal notation, and obtain W_0'.
23) Calculate X_2' using the following equations (decimal notation calculation).

$C' = W_0' - B' - 21$ .... Equation 4

$X_2' = \frac{(108 - B') \times (X_1' - 48) + 48 \times C'}{C'}$ .... Equation 5

(X_1' and B' are values obtained from equations 2) and3)

24) Convert X_2' to hexadecimal notation and obtain X_2. (Round off to one decimal place)
25) Set data X_2 to page: F, address: 3B, and press the PAUSE button of the adjusting remote commander.
26) Change the data of page: F, address: 3C, and adjust the DDS display data to "81".
27) Press the PAUSE button of the adjusting remote commander.
28) Set data: 01 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
29) Check that the DDS display data lies within the "13" to "17" range.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 03.
4) Set data: 00 to page: 0, address: 01.

5. Flange Back Adjustment

The inner focus lens flange back adjustment is carried out automatically.

5-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (1.5 m from the front of the lens) (Luminance: 300 ± 50 lux)
Measurement Point	Check operations on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

Adjusting method:

1) Check that at both the zoom lens TELE terminal and WIDE terminal, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Set data: 01 to page: 0, address: 01.
3) Check that the data of page: F, address: 2E to 33, 49 to 4D is the initial value (see table below).

Address	Data	Address	Data
2E	A6	33	11
2F	1A	49	25
30	15	4A	00
31	24	4B	19
32	8C	4C	00

4) Check that the data of page: 2, address: 02 is 00.
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 27 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
(The adjustment data will be automatically input to page: F, address: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments

1) Turn OFF the main power supply (7.2V)
2) Perform "Flange Back Adjustment (2)".

5-2. Flange Back Adjustment (2)

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Adjustment Page	F
Adjustment Address	2E to 33, 49 to 4D

Adjusting Method:

1) Set the IRIS to open. (Use a ND filter)
2) Set the zoom lens to the TELE end and expose a subject that is more than 500 m away (subjects with clear contrast such as buildings, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
3) Set data: 01 to page: 0, address: 01.
4) Check that the data of page: 2, address: 02 is "00".
5) Set data: 13 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 27 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
   (Adjustment data will automatically be input to page: F, addresses: 2E to 33, 49 to 4D.)
7) Check that the data of page: 2, address: 02 is "01".

Processing after Completing Adjustments

1) Set data: 00 to page: 0, address: 01.
2) Turn OFF the main power supply (7.2V).
3) Perform "Flange Back Check".

6. Flange Back Check

Subject	Siemens star (1.5m from the front of the lens Luminance: approx. 200 lux)
Measurement Point	Check the operation on the TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Checking method:

1) Place the Siemens star 1.5m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appears on the image.
3) Set data: 02 to page: 2, address: 40.
4) Set data: 01 to page: 2, address: 41.
5) Shoot the siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note 1), and turn off the auto focus
8) Set data: 10 to page: 2, address: 21.
9) Shoot the siemens star with the zoom WIDE end.
10) Check that the lens is focused.

Note 1: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on page 1 of the adjusting remote commander.

1) Set data: 0F to page: 0, address: 03.
2) Page A shows the state of the focus.

1 : 00 : XX
→ (Odd: Focused
Even: Unfocused)

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 21.
2) Set data: 00 to page: 2, address: 03.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 2, address: 41.

7. Picture Frame Setting

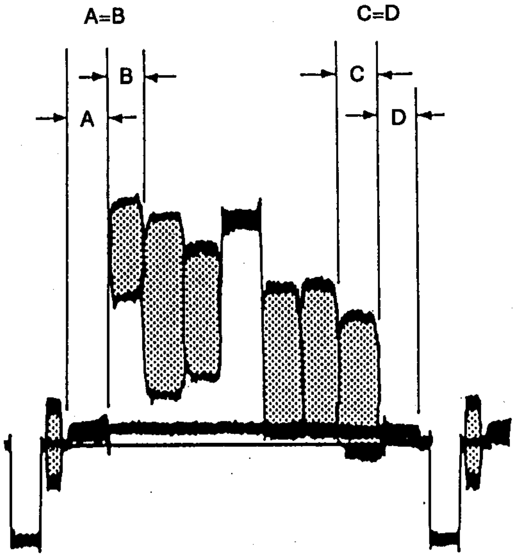
Subject	Color bar chart standard picture frame (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor.
Specified Value	A = B, C = D, t = 0 ± 0.1 msec

Setting method:

1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "color bar chart standard picture frame".

Check on the oscilloscope

1. horizontal period



2. Vertical period

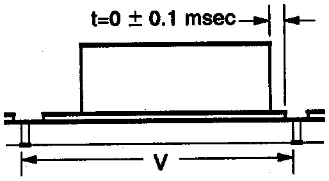


Fig. 6-1-7.

Check on the TV monitor

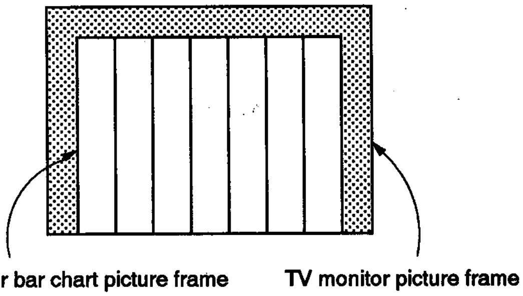

Color bar chart picture frame
TV monitor picture frame

Fig. 6-1-8.

8. Color Reproduction Adjustment

Adjust the color separation matrix coefficient so that the proper color reproduction is produced.

Subject	Color bar chart standard picture frame
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	3F, 41, DF, E0
Specified Value	All color luminance points should settle within each color reproduction frame.

Note: CCD (760) model: CCD-TRV81/TRV41
CCD (510) model: CCD-TRV51/TRV31

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 3D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 3F to page: F, address: 22, and press the PAUSE button of the adjusting remote commander.
4) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
5) Change the data of addresses 3F, 41, DF and E0 of page: F, and settle each color luminance point in each color reproduction frame.

   Note 1: Be sure to press the PAUSE button of the adjusting remote commander before changing the addresses. If not, the new data will not be written to the memory.
6) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01 and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 0, address: 01.

For CCD-TRV41/TRV81

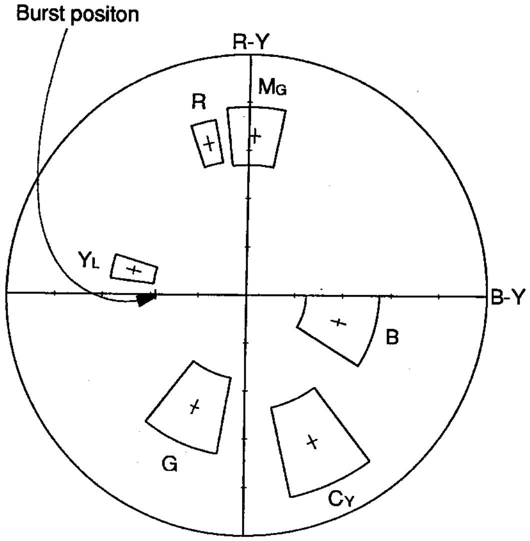


Fig. 6-1-9.

For CCD-TRV31/TTRV51

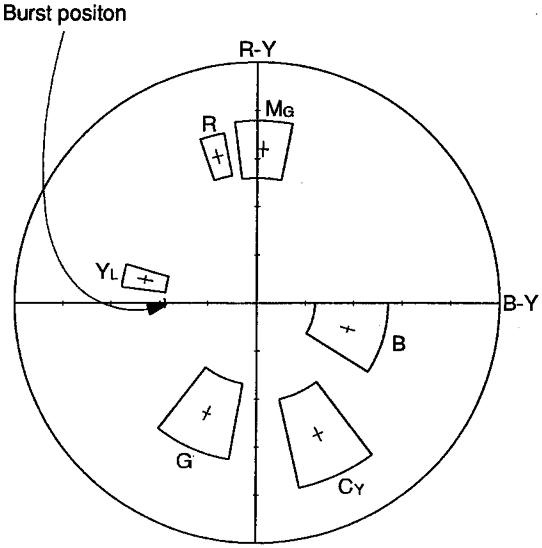


Fig. 6-1-10.

9. IRIS IN/OUT Adjustment

For the unit to judge if the white balance is indoors or outdoors in auto white balance operations, measure the light level and write it in the EEPROM.

If the level is not correct, the white balance will not be accurate.

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	47, 48

Switch setting:

1) STEADY SHOT switch (S023 on SD-20 board)OFF

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 06 to page: 0, address: 03.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 02 to page: 2, address: 40.
5) Set data: 0B to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Read the DDS display data (Note 1), and take the upper two digits as D1 and the lower two as D2.
7) Convert D1 to a decimal number and obtain D1'. (Refer to Table 6-1-4. "Hexadecimal Notation-Decimal Notation Conversion Table".)
8) Calculate D3' using the following equations. (Equations 1 and 2 are for decimal notation calculation)

   When D2 ≥ D0

   D3' = D1' − 21 .... Equation 1

   When D2 < D0

   D3' = D1' − 22 .... Equation 2
9) Convert D3' to a hexadecimal number and obtain D3.
10) Set D3 to page: F, address: 47, and press the PAUSE button of the adjusting remote commander.
11) Set data: 09 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
12) Read the DDS display data (Note 1), and take the upper two digits as D4 and the lower two as D5.
13) Convert D4 to a decimal number and obtain D4'. (Refer to Table 6-1-4. "Hexadecimal Notation-Decimal Notation Conversion Table".)
14) Calculate D6' using the following equations. (Equations 3 and 4 are for decimal notation calculation)

   When D5 ≥ F0

   D6' = D4' − 13 .... Equation 3

   When D5 < F0

   D6' = D4' − 14 .... Equation 4
15) Convert D6' to a hexadecimal number and obtain D6.
16) Set D6 to page: F, address: 48, and press the PAUSE button of the adjusting remote commander.

Note 1: The right four digits of the display data at the right bottom side of the EVF and monitor TV is the LIGHT LEVEL data. If the lower digits change severely and cannot be read, record it on a tape once, play it back by frame feeding, and obtain the average value.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 0, address: 03.
5) Set data: 00 to page: 0, address: 01.

10. MAX GAIN Adjustment

Setting the minimum illumination.
If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Color bar standard picture frame)
Measurement Point	DDS display of EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	3D
Specified Value	CCD (760) model: CCD-TRV41/TRV81 B0 to B8 CCD (510) model: CCD-TRV31/TRV51 E5 to ED

Note 1: CCD (760) model: CCD-TRV81/TRV41
CCD (510) model: CCD-TRV51/TRV31

Switch setting:
1) STEADY SHOT switch (S023 on SD-20 board)OFF

Adjusting method:
1) Set data: 01 to page: 0, address: 01.
2) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 01 to page: 0, address: 03.
4) Set data: 02 to page: 2, address: 40.
5) Set data: 40 to page: 2, address: 56.
6) Set data: 19 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
7) Change the data of page: F, address: 3D and adjust so that the DDS display data (Note 2) lies within the specified value.
8) Press the PAUSE button of the adjusting remote commander.

Note 2: The right two digits of the display data at the right bottom side of the EVF and monitor TV is the object data. If the data change severely and cannot be read, record it on a tape once, play it back by frame feeding, and obtain the avarage value.

Processing after Completing Adjustments
1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 2, address: 40.
4) Set data: 00 to page: 2, address: 56.
5) Set data: 00 to page: 0, address: 03.
6) Set data: 00 to page: 0, address: 01.

11. Auto White Balance Standard Data Input

Subject	Clear chart (Color bar standard picture frame)
Adjustment Page	F
Adjustment Address	2A to 2D

Note 1: Perform "Color Reproduction Adjustment" before this adjustment.

Note 2: Check that the data of page: 2, address: 02 is 00.
If not, turn the power of the unit OFF/ON.

Adjusting method:

1) Set data: 01 to page: 2, address: 01.
2) Wait for 2 seconds.
3) Set data: 11 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Set data: 0D to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
(When the standard data is taken in, the data will be automatically input to addresses 2A to 2D of page F.)
5) Check that the data of page: 2, address: 02 is 01.
6) Perform "Auto White Balance Adjustment".

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 0, address: 01.

12. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Check with the DDS display on the EVF or TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	45, 46
Specified Value	R ratio: 2B40 to 2BC0 B ratio: 5E40 to 5EC0

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 21 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 3F to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 04 to page: 0, address: 03.
6) Change the data of page: F, address: 45, and adjust the average value of the DDS display data (the display data at the bottom right of the EVF or the TV monitor) to the R ratio specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Set data: 05 to page: 0, address: 03.
9) Change the data of page: F, address: 46, and adjust the average value of the DDS display data to the B ratio specified value.
10) Press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
2) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 03.
4) Set data: 00 to page: 0, address: 01.

13. White Balance Check

Subject	Clear chart (Color bar standard picture frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.3
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 6-1-11. A to C

Checking method:

1) Check that the lens is not covered with either filter.
2) Set data: 0F to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the center of the white luminance point is within the circle shown in Fig. 6-1-11.A.
4) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
5) Set data: 23 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown in Fig. 6-1-11. B.
8) Remove the C14 filter, and place the ND filter 1.3 (1.0 + 0.3) on the lens.
9) Check that the center of the white luminance point settles in the circle shown in Fig. 6-1-11. C.

Processing after Completing Adjustments

1) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.

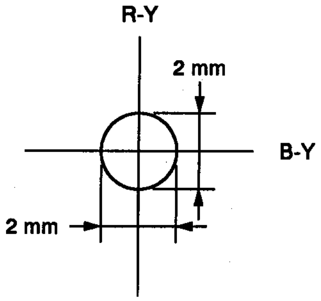


Fig. 6-1-11. A

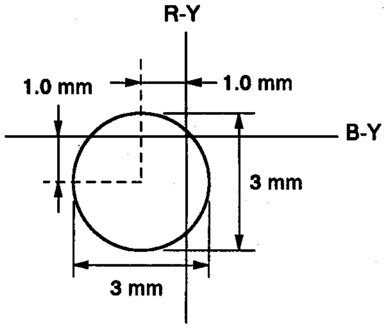


Fig. 6-1-11. B

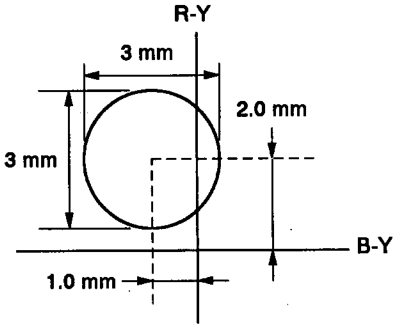


Fig. 6-1-11. C

14. Velocity Sensor Sensitivity Adjustment (CCD-TRV41/TRV81)

- This adjustment is performed only when replacing the velocity sensor.
  Although this adjustment need not be performed when the circuit is damaged, etc., check the operations.
- Note down the sensitivity displayed on the velocity sensor of the repair parts. At this time, note down also to which board it was attached to.
  Be sure to check because if attached incorrectly, the screen will vibrate up and down or left and right during hand-shake correction operations.

Precautions on Parts Replacement

There are two types of repair parts-ENC05EA and ENC05EB. Replace the broken sensor with a same type of sensor. If ENC05EA and ENC05EB are attached correctly, the screen will vibrate up and down or left and right during hand-shake correction operations. After replacing, re-adjust according to the adjusting method after replacement.

Precautions on Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it is dropped, the the balance of the oscillator will be disrupted and operations will not be performed properly.

Adjusting page	F
Adjusting address	52, 53

Note: The sensor sensitivity of SE451 and SE452 of the SE-50 board is written only on the repair parts.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Read the sensor sensitivity written on SE452 of the SE-50 board, and take this as S452.
3) Read the sensor sensitivity written on SE451 of the SE-50 board, and take this as S451.
4) Calculate D52′ and D53′ using the following equation (decimal calculation).

$$D52' = \frac{135}{S452}$$

$$D53' = \frac{130}{S451}$$

5) Convert D52′ and D53′ into hexadecimal digits, to obtain D52 and D53. (Round off decimal points)
6) Set data: D52 to page: F, address: 52, and press the PAUSE button of the adjusting remote commander.
7) Set data: D53 to page: F, address: 53, and press the PAUSE button of the adjusting remote commander.

Processing after Completing Adjustments

1) Set data: 00 to page: 0, address: 01.
2) Check that the hand-shake correction operations have been performed normally.

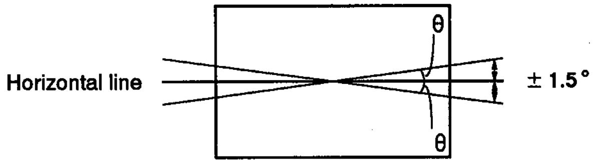
1-3. ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENTS

1-3-1. Horizontal Slant Check

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP or WR5-8NSE) Monoscope section
Specified Value	± 1.5°

Adjusting method:

1) Adjust RV904 (BRIGHT) so that the CRT can be seen easily and clearly.
2) Check that the difference between the horizontal line and the tilt of the black mask satisfies the specified value.



Specified value: The image should be within ± 1.5° of the horizontal line.

Fig. 6-1-12.

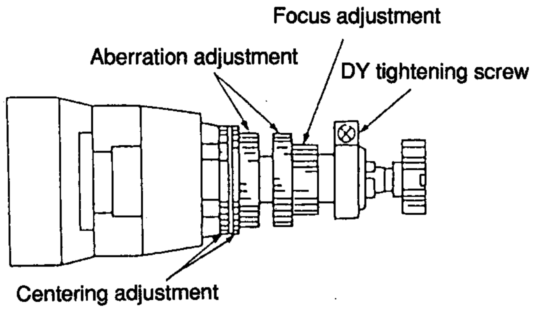


Fig. 6-1-13.

1-3-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP or WR5-8NSE) Monoscope section
Specified Value	± 4%

Adjusting method:

1) Use the centering adjustment ring and adjust so that the left, right, top, and bottom sides of the display are uniform. (Refer to Fig. 6-1-13.)

Note: As the centering position changes due to earth magnetism, rotate it 360° in the horizontal direction, and adjust with the center section of the modifying position.

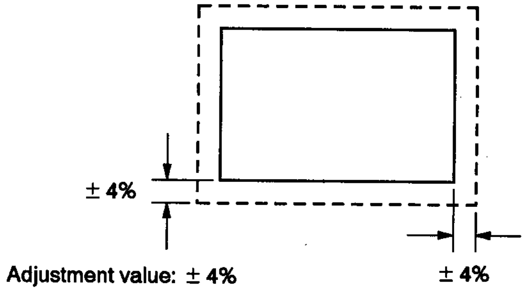


Fig. 6-1-14.

1-3-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP or WR5-8NSE) Monoscope section

Adjusting method:

1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 6-1-13.)

1-3-4. Aberration Adjustment

Mode	E-E
Signal	Dot pattern
Specified Value	$b_1 \leqq 2 \cdot a_1$ $b_2 \leqq 0.8 \cdot a_2$

Adjusting method:

1) Adjust the aberration adjustment ring so that the tracing of the dot satisfies the specified value.
2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

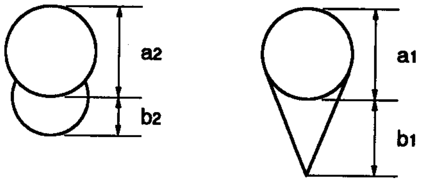


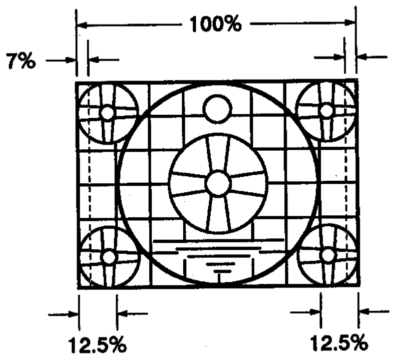
Fig. 6-1-15.

1-3-5. Horizontal Amplitude Adjustment (VF-99 board)

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP or WR5-8NSE) Monoscope section
Adjusting Element	C909 (SOL90)
Specified Value	14 ± 6%

Adjusting method:

1) Rotate RV903, and adjust the top and bottom sides of the monoscope image to the top and bottom edges of the display.
2) Rotate RV904 so that the brightness is the normal level.
3) Solder or unsolder SOL901 pattern of the H size adjustment capacitor (C909) to "short" or "open", so that the horizontal direction over scan becomes 14 ± 6% (Left and right totals).



SOL901	Size H
Open	Small
Short	Big

Fig. 6-1-16.

1-3-6. Vertical Amplitude Adjustment (VF-99 board)

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP or WR5-8NSE) Monoscope section
Adjusting Element	RV903
Specified Value	10 ± 3%

Adjusting method:

1) Adjust RV903 so that the vertical direction over scan becomes 10 ± 3% (Top and bottom totals).

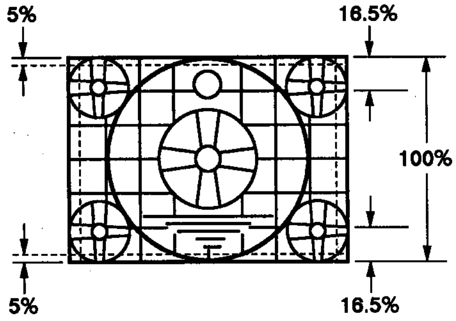


Fig. 6-1-17.

1-3-7. Brightness Adjustments (VF-99 board)

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP or WR5-8NSE) Monoscope section
Specified Value	RV904

Adjusting method:

1) Rotate RV904, and adjust so that the bright/dark sections of the gray scale are displayed correctly. (The bright section should be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till the darkest section and the second darkest section of the gray scale cannot be differentiated.)

1-3-8. Horizontal Amplitude, Vertical Amplitude, Focus Check

"1-3-5. Horizontal Amplitude Adjustment" and "1-3-6. Vertical Amplitude Adjustment" should both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform [1-3-7. Brightness Adjustments] again.
Moreover, check the focus, and if it found to be vague, perform "1-3-3. Focus Adjustment" and "1-3-4. Aberration Adjustment".

1-4. LCD SYSTEM ADJUSTMENTS

Note 1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note 2: When replacing the LCD unit, be very careful to prevent damages caused by static electricity.

Note 3: Set "brightness" to the center using the "Brightness" adjusting button (S991, 992 of the PD-65 board).

[Adjusting connector]

Most of the measuring points for adjusting the LCD display are concentrated in CN802 of the SD-20 board.

Connect the measuring instruments via the multi CPC tool (J-6082-311-A).

The following table shows the Pin No. and signal name of CN802.

Pin No.	Signal Name	Pin No.	Signal Name
1	VR	6	SYNC
2	VG	7	HSY
3	VB	8	N.C.
4	COM-O	9	N.C.
5	GND		

Table 6-1-7.

[Power Supply Voltage]

Adjust the power supply voltage so that the battery terminal voltage becomes 7.2 ± 0.1 Vdc.

[Video input signal for adjustment]

If stated as "cover signal whose chroma signal and burst signal have been turned off" in the signal column, input the cover signal whose chroma signal and burst signal have been turned off in the video input terminal as the video input signal for adjusting. Check that the input signal level is 1.00 Vp-p before adjusting.

Note: Check in the recording mode

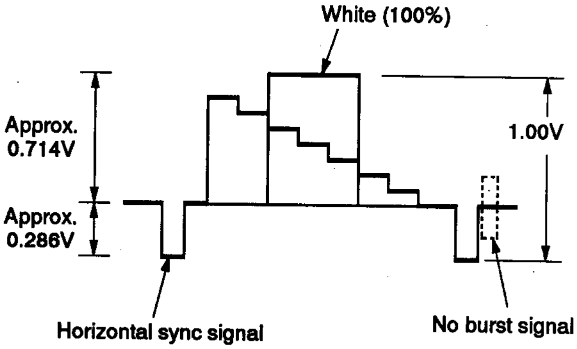


Fig. 6-1-18. Color Bar Signal with Chroma Signal and Burst Signal Off

1. LCD Initial Data Input

Mode	VTR stop
Signal	Arbitary
Adjustment Page	D
Adjustment Address	3F, 52 to 63

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Select page: D, and input the data in the following table.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.
3) Set data: 00 to page: 0, address: 01.

Address	Data		Remarks
	3" LCD	4" LCD	
3F	04	04	Fixed value
52	65	65	
53	86	86	
54	50	50	
55	7D	7D	
56	6D	6D	
57	92	92	
58	80	80	
59	46	46	
5A	65	65	
5B	87	87	
5C	7B	80	
5D	6C	6C	
5E	00	00	
5F	7B	80	
60	00	00	Fixed value
61	00	00	Fixed value
62	5D	6E	Fixed value
63	98	A8	Fixed value

3" LCD model: CCD-TRV31/TRV41
4" LCD model: CCD-TRV51/TRV81

2. VCO Adjustment (PD-65 board)

Set the VCO freerun frequency.

If deviated, the LCD screen will be blur.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑦ of CN802 (HSY) on SD-20 board
Measuring Instrument	Frequency counter
Adjustment Page	D
Adjustment Address	58
Specified Value	f = 15734 ± 30 Hz

Note: Press the DISPLAY button (S005 on SD-20 board) and erase the screen indicators on the LCD screen.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 0, address: FF.
3) Set data: 05 to page: 2, address: 01.
4) Set data: 06 to page: 3, address: 2B.
5) Set data: 06 to page: 3, address: 2C.
6) Set data: 00 to page: 0, address: FF.
7) Change the data of page: D, address 58, and set the HSY signal frequency (f) to the specified value.
8) Press the PAUSE button of the adjusting remote commander.
9) Set data: 03 to page: 0, address: FF.
10) Set data: 05 to page: 2, address: 01.
11) Set data: 00 to page: 3, address: 2B.
12) Set data: 00 to page: 3, address: 2C.
13) Set data: 00 to page: 0, address: FF.
14) Set data: 00 to page: 0, address: 01.

3. Horizontal Display Position Adjustment (PD-65 board)

Adjust the LCD horizontal position.

If deviated, the screen will deviate to the left or right.

Mode	VTR stop
Signal	Color bar
Measurement Point	CH1: Pin ⑥ of CN802 (SYNC) on SD-20 board CH2: Pin ⑦ of CN802 (HSY) on SD-20 board
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5C, 5F
Specified Value	T = 1.8 ± 0.1 μsec. (CCD-TRV41/TRV81) T = 0.8 ± 0.1 μsec. (CCD-TRV31/TRV51)

Note: Simple connection method

If controlled monoscope signals, etc. are input, the horizontal position can be adjusted while viewing the LCD screen.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: D, address: 5C, and set the time difference (T) between the SYNC waveform and HSY waveform to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set the same data as page: D, address: 5C to page: D, address: 5F, and press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 0, address: 01.

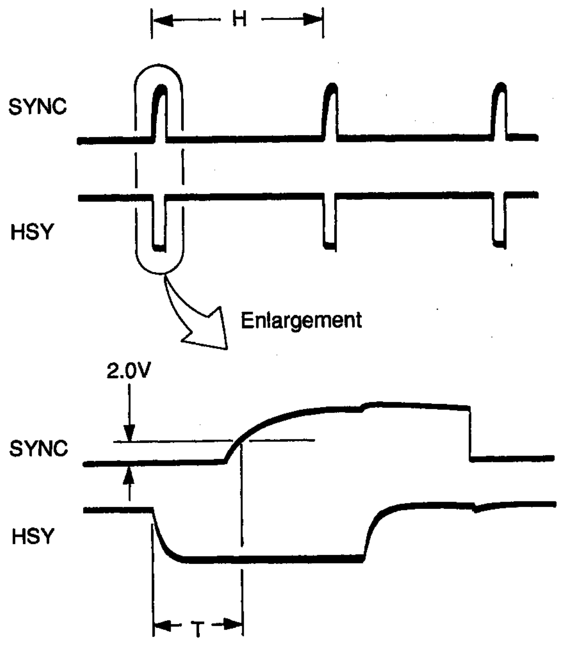


Fig. 6-1-19.

4. D Range Adjustment (SD-20 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR stop
Signal	Color bar signal whose chroma signal and burst signal have been turned off.
Measurement Point	Pin ② of CN802 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5A
Specified Value	A = 3.80 ± 0.05V

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: D, address: 5A, and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

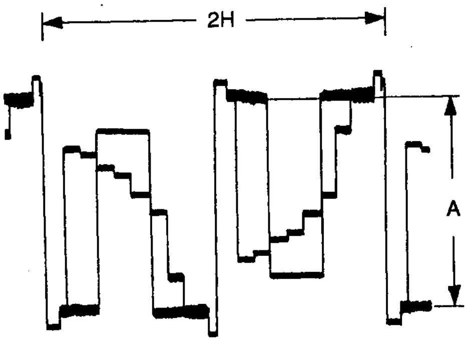


Fig. 6-1-20.

5. Bright Adjustment (SD-20 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will not be consistent or will be blackish or saturated (whitish).

Mode	VTR stop
Signal	10-step stair-step
Measurement Point	Pin ② of CN802 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	52, 5D
Specified Value	A = 1.26 ± 0.05V

Note: Same as "6. Contrast Adjustment" and tracking adjustment.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: D, address: 52, and set the voltage (A) between the pedestal and 20IRE to the specified value.
3) Set the same data as page: D, address: 52 to page: D, address: 5D, and press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.
5) Check that the specified value of "Contrast Adjustment" is satisfied. If not, perform the "Contrast Adjustment".

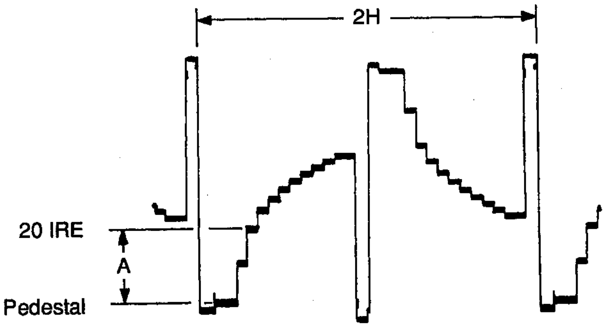


Fig. 6-1-21.

6. Contrast Adjustment (SD-20 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will not be consistent or will become blackish or saturated (whitish).

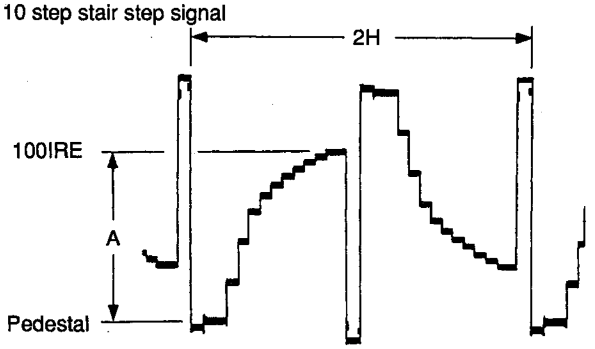
Mode	VTR stop
Signal	10-step stair-step or color bar signal whose chroma signal and burst signal have been turned off.
Measurement Point	Pin ② of CN802 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	57
Specified Value	A = 3.32 ± 0.05V

Note: Same as "5. Bright Adjustment" and tracking adjustment.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: D, address: 57, and set the voltage (A) between the pedestal and white 100% (100IRE) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.
5) Check that the specified value of "Bright Adjustment" is satisfied. If not, perform the Bright adjustment.

10 step stair step signal



Color bar signal whose chroma signal and burst signal have been turned off.

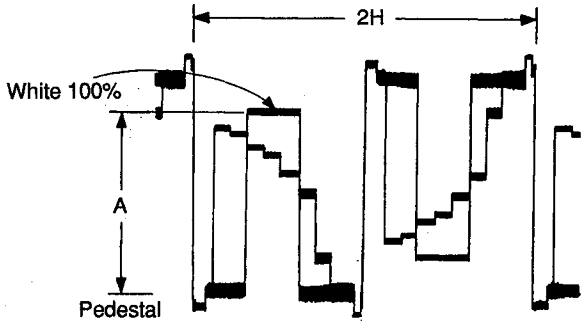


Fig. 6-1-22.

7. V-COM Level Adjustment (SD-20 board)

Set the common electrode drive signal of the LCD display to the specified value.

Mode	VTR stop
Signal	Color bar signal whose chroma signal and burst signal have been turned off.
Measurement Point	Pin ④ of CN802 (COM-O)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	5B
Specified Value	A = 2.55 ± 0.05V

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: D, address: 5B, and set the COM-O signal level (A) to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

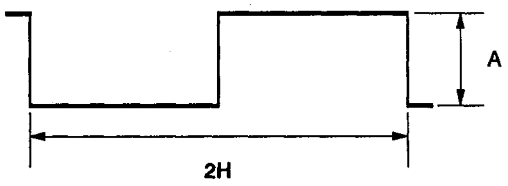


Fig. 6-1-23.

8. COLOR Adjustment (SD-20 board)

Set the color thickness to the standard value.
If deviated, the color will be too dark or light.

Mode	VTR stop
Signal	Color bar signal (With chroma signal and burst signal)
Measurement Point	Pin ② of CN802 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	53
Specified Value	A = +0.23 ± 0.05V

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: D, address: 53, and set the green level (A) to white (75%).
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

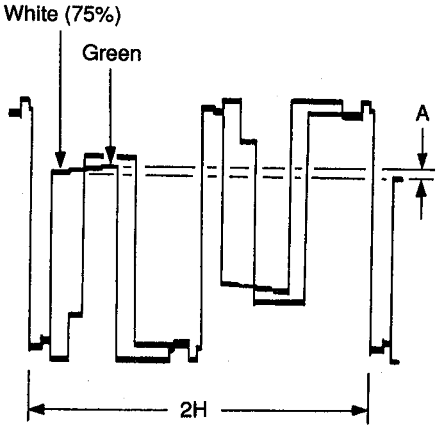


Fig. 6-1-24.

9. HUE Adjustment (SD-20 board)

Set the hue to the standard value.
If deviated, the hue will be unnatural.

Mode	VTR stop
Signal	Color bar signal (With chroma signal and burst signal)
Measurement Point	Pin ② of CN802 (VG)
Measuring Instrument	Oscilloscope
Adjustment Page	D
Adjustment Address	54
Specified Value	A = +0.20 ± 0.05V

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: D, address: 54, and set the cyan level (A) to the specified value in respect to yellow.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

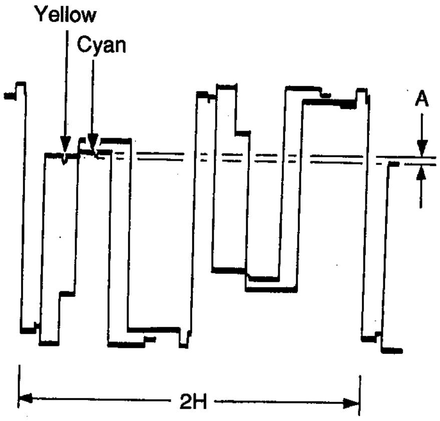


Fig. 6-1-25.

10. V COM Adjustment (PD-65 board)

Set the DC bias of the common electrode drive signal of the LCD panel to the specified value.

If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	Playback pause
Signal	Alignment tape: SP mode operation check (WR-5NSP) Color bar portion
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	D
Adjustment Address	59

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 11 to page: D, address: 13 and press the PAUSE button of the adjusting remote commander.
3) Set the playback pause state at the color bar portion of the alignment tape.
4) Set the data of page: D, address: 59 to the initial value (44).
5) Change the data of page: D, address: 59 and observe the pattern of the noise bar of the LCD display. When the data is increased from the initial value, black dots will be seen around the part with the head clog pattern. Take the data at this time as DA. When decreased from the initial value, the same black dots will be seen and this data named DB.
6) Convert DA and DB to decimal numbers to obtain DA and DB′.
   (Refer to Table 6-1-4. Hexadecimal-Decimal Conversion.)
7) Calculate DC′ using the following equation (decimal calculation)
   DC′ = (DA′+DB′)÷2
8) Convert DC′ to a hexadecimal number to obtain DC.
   Press the PAUSE button of the remote commander.
10) Set data: 31 to page: D, address: 13 and press the PAUSE button of the remote commander.
11) Set data: 00 to page: 0, address: 01.

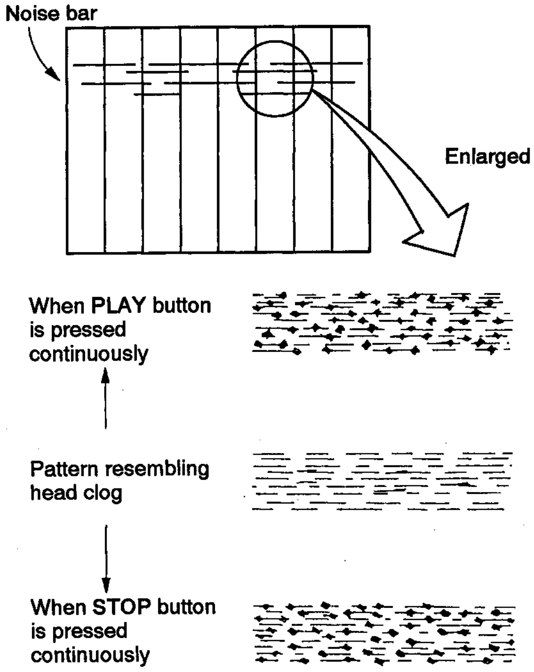

Noise bar
Enlarged
When PLAY button is pressed continuously
Pattern resembling head clog
When STOP button is pressed continuously

Fig. 6-1-26.

11. White Balance Adjustment (SD-20 board)

Adjust the white balance.

If deviated, the LCD screen color cannot be reproduced.

Mode	VTR stop
Signal	Color bar signal whose chroma signal and burst signal have been turned off.
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	FD
Adjustment Address	55, 56
Specified Value	The LCD display is B/W.

Note: Check the white balance only when replacing the following parts. If necessary, adjust them.

1. LCD panel
2. Light induction plate
3. IC805

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set the data of page: D, addresses: 55 and 56 to the initial value.

Address	Data
55	7D
56	6D

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

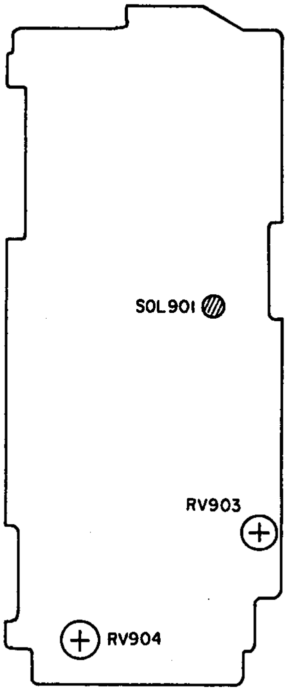
3) Check that the LCD display is black and white. If colored, change the data of page: D, addresses: 55 and 56 so that the LCD display becomes black and white.

Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjusting remote commander each time to set the data.

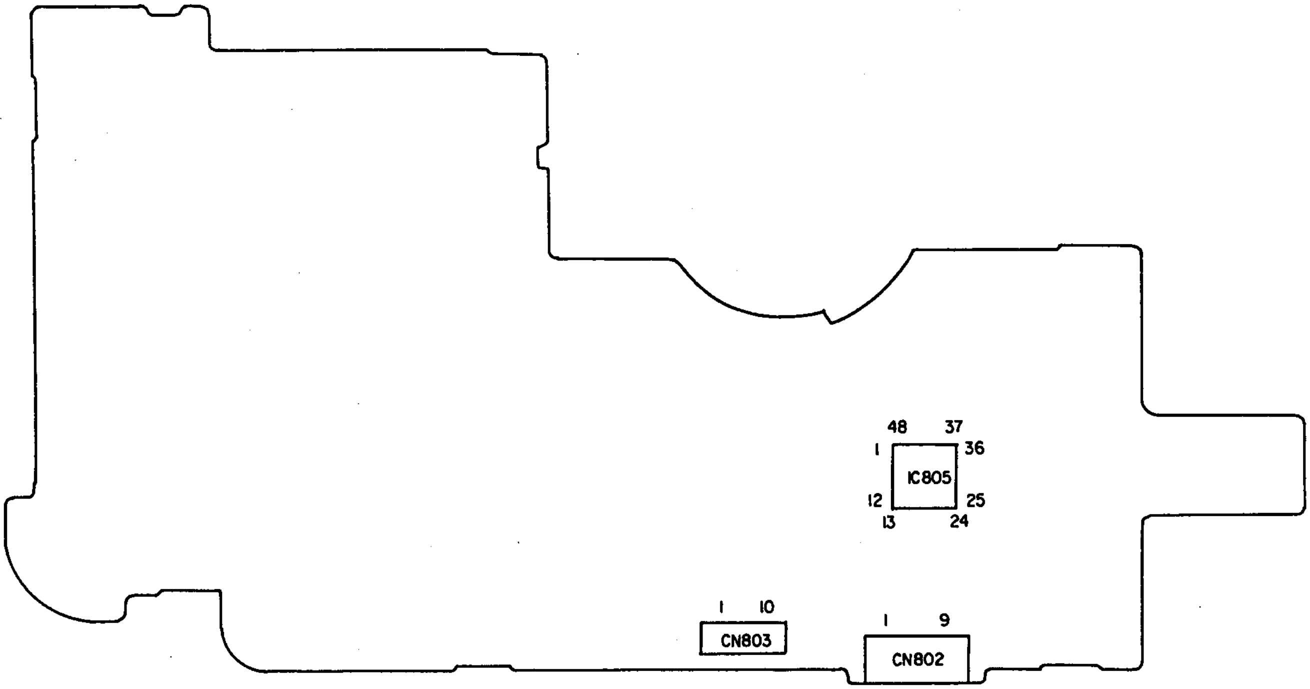
4) Set data: 00 to page: 0, address: 01.

1-5. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VF-99 BOARD (COMPONENT SIDE)


SOL901
RV903
RV904

SD-20 BOARD (COMPONENT SIDE)


48
37
1
36
IC805
12
25
13
24
1
10
CN803
1
9
CN802

6-2. MECHANICAL SECTION ADJUSTMENT

Mechanism Parts Adjustments

For details on the adjustments and checks of mechanical section and replacements of mechanism parts, refer to the separate volume- "8 mm Video Mechanism Adjustment Manual VII B Mechanism ".

2-1. OPERATING WITHOUT A CASSETTE

1) Refer to "2. DISASSEMBLY" and supply the power with the cabinet removed. (So that the mechanical deck can be operated.)
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Set data: 01 to page: 0, address: 01.
6) Set data: 01 to page: F, address: 29, and press the PAUSE button of the adjusting remote commander.
7) Set data: 04 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.

By carrying out the above procedure, the unit can be operated without loading a cassette.

Be sure to carry out "Processing after Operations" after checking the operations.

Set the data of page: D, address: 10 to the following if the sensor ineffective mode, forced VTR power supply ON mode or forced camera power supply ON mode are to be used together.

Forced VTR power supply ON mode 06
Forced camera power supply ON mode........05

[Processing after Operations]

1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: F, address: 29, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.
5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for adjustments

1) Clean the tape path face (tape guide, drum, capstan shaft, pinch roller).
2) Connect the adjusting remote commander to the remote terminal.
3) Turn on the HOLD switch of the adjusting remote commander.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: F, address: 29, and set data: 04 and press the PAUSE button of the adjusting remote commander.
   (Be sure to perform "Processing after operations" after completing adjustments.)
6) Connect the oscilloscope.
   Channel 1-Pin ⑨ of CPC of FP-379 flexible board
   External trigger-Pin ④ of CPC of FP-379 flexible board
   (Connect the oscilloscope via the multi CPC-5 jig (J-6082-351-A).)
7) Playback the alignment tape for tracking (WR5-1NP).
8) Check that the RF waveform of the oscilloscope is flat at both the entrance and the exit.
   If not flat, perform necessary adjustment according to the separate "8 mm Video Mechanical Adjustment Manual VII (B Mechanism)".
9) Perform "Processing after operations", after completing adjustments.

CPC of FP-379 flexible board

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	CAP FG	4	RF SWP
5	1/2 SWP	6	REC RF
7	REG GND	8	PB PCM RF
9	PB RF	10	CHASSIS GND
11	RF AGC IN	12	AFC FO
13	EZ I/O	14	RF AGC OUT
15	REC AFM	16	BPF MON
17	EVF UNREG (–)	18	VCO
19	EVF UNREG	20	EVF VG

[Processing after operations]

1) Connect the adjusting remote commander, and turn on the HOLD switch.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: 29, and set data: 00.
4) Press the PAUSE button of the adjusting remote commander.
5) Select page: 0, address: 01, and set data: 00.
6) Remove the power supply from the unit.

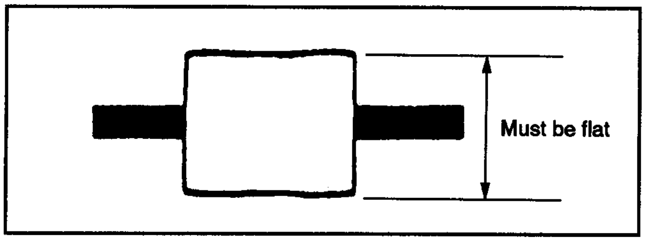


Fig. 6-2-1.

6-3. VIDEO SECTION ADJUSTMENTS

When performing adjustments, refer to the layout diagrams for adjustment related parts beginning from page 6–64.

3-1. PREPARATIONS BEFORE ADJUSTMENT

The following adjusting instruments are used for adjusting the video section.

3-1-1. Equipments to be Used

1) TV monitor
2) Oscilloscope: 2 phenomena, band 30 MHz or wider, with delay mode. (Use a 10:1 probe unless specified otherwise.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuater
10) Regulated power supply
11) Alignment tape
    - For tracking adjustment (WR5-1NP)
      Part Code: 8-967-995-02
    - For video frequency characteristics adjustment (WR5-7NE)
      Part Code: 8-967-995-13
    - For checking Standard 8 mm mode operations
      For LP (WR5-4NL)
      Part Code: 8-967-995-51
      For SP (WR5-5NSP)
      Part Code: 8-967-995-42
      Note: The following alignment tapes can also be used.
      1) WR5-4NSP (8-967-995-41)
    - For checking Hi8 mode operations
      For SP (WR5-8NSE)
      Part Code: 8-967-995-43
      For LP (WR5-8NLE)
      Part Code: 8-967-995-52
    - For checking AFM stereo operations (WR5-9NS)
      Part Code: 8-967-995-23
      For checking BPF adjustment (WR5-11NS)
      Part Code: 8-967-995-71
12) Remote commander for adjustment (J-6082-053-B)
13) Multi CPC jig
    Part Code: J-6082-311-A
14) CPC-5 jig
    Part Code: J-6082-351-A
15) Power code
    Part Code: J-6082-223-A
16) AFM DEV jig (J-6082-312-A)
17) Extension cable (60P, 0.5 mm) (J-6082-356-A)

3-1-2. Precautions in Adjustment

1) The adjustments of this unit can be performed in the VTR mode (S video terminal input or video terminal input mode) or in the camera mode.
   When set to the VTR mode, set the power switch to "Video" or set to the "forced VTR power supply ON mode" (Note 1) using the adjusting remote commander.
   To set to the camera mode, set the power switch to "Camera" or set to the "forced camera+VTR power supply ON mode" (Note 2) using the adjusting remote commander.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode" (Note 1) and "forced camera+VTR power supply ON mode". (Note 3)
2) The front panel block (zoom switch of MA-262 board, MF-292 board) need not be connected. To disconnect, disconnect the following two connectors.
   1. CN121 of the MF-292 board (8P, 0.5 mm)
   2. CN303 of the MA-262 board (13P, 0.5 mm)
3) The lens block (CD-146 board) and accessory shoe are not required for video section adjustments (excluding the battery end adjustment). During adjustments, disconnect the following three connectors.
   1. CN113 of the VC-177 board (23P, 0.5 mm)
   2. CN112 of the VC-177 board (16P, 0.5 mm)
   3. CN205 of the VC-177 board (10P, 0.5 mm)
4) The viewfinder need not be connected. To disconnect, disconnect the following connector.
   1. CN111 of the VC-177 board (20P, 0.5mm)
5) The cabinet (R) (power supply switch, speaker of SD-20 board) and LCD panel (PD-65 board) need not be connected be set to the "forced VTR power supply ON mode" or "forced camera+VTR power supply ON mode" (excluding battery end adjustment). To disconnect, disconnect the following three connectors.
   1. CN201 of the VC-177 board (18P, 0.5mm)
   2. CN502 of the HI-34 board (24P, 0.5 mm)
   3. CN1502 of the DD-85 board (10P, 0.5 mm)
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode" and "forced camera+VTR power supply ON mode". (Note 3)

Note 1: Setting the "forced VTR power supply ON mode"

1) Set data: 01 to page: 0, address: 01.
2) Set data: 02 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
   Hereafter, VTR operations cannot be performed even if the cabinet (R) is removed using the above steps.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode".

Note 2: Setting the "forced camera+VTR power supply ON mode" (camera mode)

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
   Hereafter, VTR operations cannot be performed even if the cabinet (R) is removed using the above steps.
   After completing adjustments, be sure to exit the "forced VTR power supply ON mode".

Note 3: Exiting the "forced power supply ON mode"

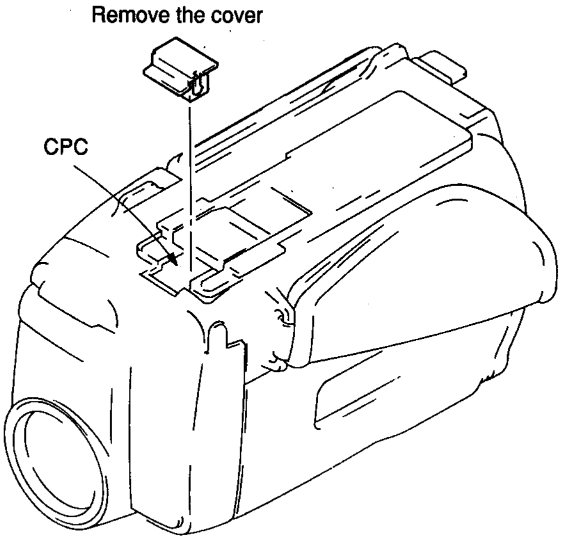
1) Set data: 01 to page: 0, address: 01.
2) Set data: 00 to page: D, address: 10, and press the PAUSE button of the adjusting remote commander.
3) Set data: 00 to page: 0, address: 01.

3-1-3. Connector for Adjustments

Some of the video section adjusting points are concentrated in the CPC of the FP-379 flexible board. Connect the measuring instruments via the CPC-5 jig (J-6082-351-A).

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	2	LANC DC
3	CAP FG	4	RF SWP
5	1/2 SWP	6	REC RF
7	REG GND	8	PB PCM RF
9	PB RF	10	CHASSIS GND
11	RF AGC IN	12	AFC FO
13	EZ I/O	14	RF AGC OUT
15	REC AFM	16	BPF MON
17	EVF UNREG (–)	18	VCO
19	EVF UNREG	20	EVF VG

Table 6-3-1.

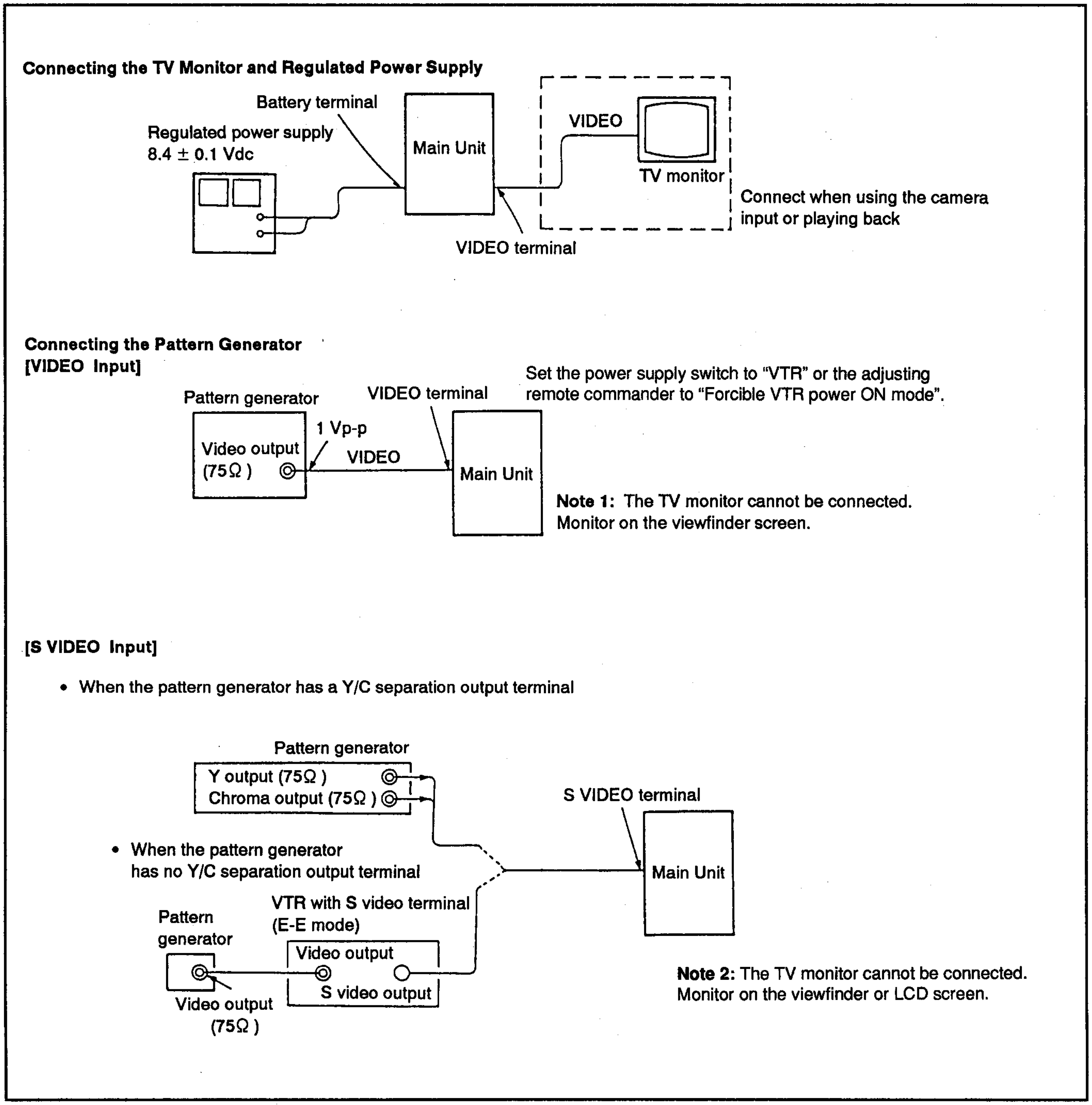


3-1-4. Connecting the Equipments

Connect the measuring instruments as shown in Fig. 6-3-1 according to the input terminal specifications (VIDEO input or S VIDEO input), and perform the adjustments.
The input terminal is specified in the ( ) in the signal column.
Either input terminal can be used when there are no specifications.

Note 1: If the VIDEO input is used for adjustments which specify for the S VIDEO input to be used, the product specifications of the unit may not be satisfied in some cases. Be sure to perform according to the specifications.

Note 2: When adjustments are performed with the S video output terminal VTR as the signal source, the efficiencies of the unit may be affected by the VTR. It is recommended that a pattern generator with a Y/C separation output terminal be used as much as possible.


Connecting the TV Monitor and Regulated Power Supply
Battery terminal
Regulated power supply
8.4 ± 0.1 Vdc
Main Unit
VIDEO
TV monitor
VIDEO terminal
Connecting the Pattern Generator
[VIDEO Input]
Pattern generator
VIDEO terminal
Video output
(75Ω)
1 Vp-p
VIDEO
Main Unit
[S VIDEO Input]
Pattern generator
Y output (75Ω)
Chroma output (75Ω)
S VIDEO terminal
Main Unit
Pattern
generator
VTR with S video terminal
(E-E mode)
Video output
S video output
Video output
(75Ω)

Connect when using the camera input or playing back

Set the power supply switch to "VTR" or the adjusting remote commander to "Forcible VTR power ON mode".

Note 1: The TV monitor cannot be connected. Monitor on the viewfinder screen.

- When the pattern generator has a Y/C separation output terminal
- When the pattern generator has no Y/C separation output terminal

Note 2: The TV monitor cannot be connected. Monitor on the viewfinder or LCD screen.

Fig. 6-3-1.

3-1-5. Checking the Input Signals

Because the video signal obtained from the pattern generator is used as the adjustment signal for adjusting the VTR section, the video output signal must satisfy the given specifications.

1. CAMERA input

Connect the oscilloscope to the Y signal terminal of the S VIDEO terminal, and check that the sync signal of the Y signal is approximately 0.286V and that the amplitude of the video section is approximately 0.714V. (When a VTR with the S VIDEO output terminal is used, also check that the chroma signal and burst signal have not remained.) Connect the oscilloscope to the chroma signal terminal of the S VIDEO terminal, and check that the burst signal amplitude of the chroma signal is approximately 0.286V and flat, and that the amplitude ratio of the burst signal to the chroma signal is 0.30 : 0.66. The Y and chroma signals used in the adjustment are shown in Fig. 6-3-2.

Note: Be sure to check in the recording mode.

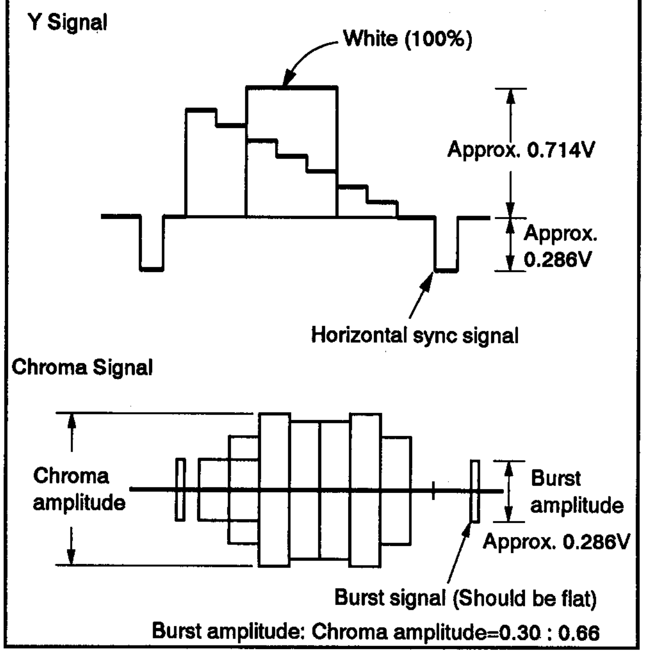

Y Signal
White (100%)
Approx. 0.714V
Approx. 0.286V
Horizontal sync signal
Chroma Signal
Chroma amplitude
Burst amplitude
Approx. 0.286V
Burst signal (Should be flat)
Burst amplitude: Chroma amplitude=0.30 : 0.66

Fig. 6-3-2. Color bar signal of pattern generator

2. VIDEO input

Connect the oscilloscope to the VIDEO terminal, and check that the sync signal amplitude of the video signal is approximately 0.286V, the amplitude of the video section is approximately 0.714V, the amplitude of the burst signal is approximately 0.286V and flat, and that the level ratio of the burst signal to the "red" signal is 0.30 : 0.66.

The video signal (color bar) used for adjusting the VTR section is shown in Fig. 6-3-3.

Note: Be sure to check in the record mode.

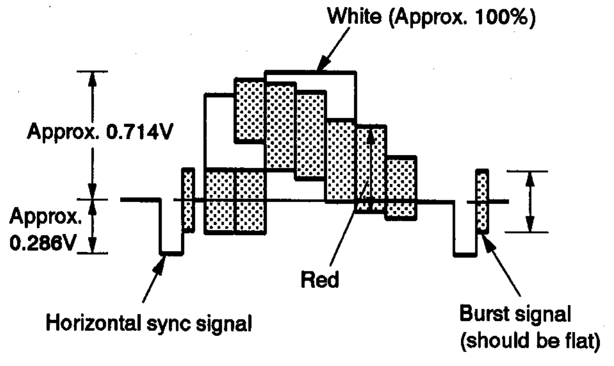

White (Approx. 100%)
Approx. 0.714V
Approx. 0.286V
Red
Horizontal sync signal
Burst signal (should be flat)

Fig. 6-3-3. Color Bar Signal of Pattern Generator

3-1-6. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

Name	Record -ing mode	Tape type	Tape speed	Usage
Tracking WR5-1NP	Standard 8 mm	MP	SP	Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7NE	Hi8	ME	SP	Frequency characteristics adjustment
Operation check WR5-5NSP	Standard 8 mm	MP	SP	Checking operations
Operation check WR5-8NSE	Hi8	ME	SP	
Operation check (LP mode) WR5-4NL	Standard 8 mm	MP	LP	
Operation check (LP mode) WR5-8NLE	Hi8	ME	LP	
AFM stereo Operation check WR5-9NS	Standard 8 mm	MP	SP	AFM stereo Checking operations
BPF adjustment WR5-11NS	Standard 8 mm	MP	SP	BPF adjustment

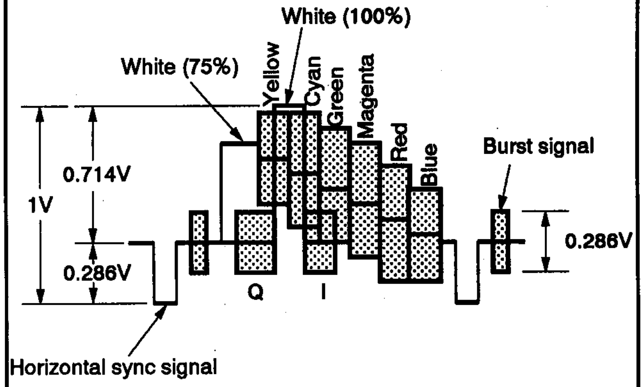
Tape type

MP ....Particle type metal tape
ME ....Evaporated type metal tape

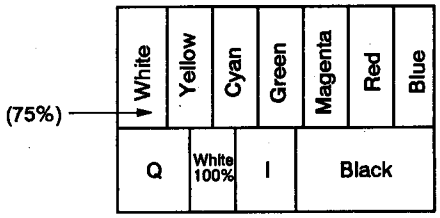
Table 6-3-2.

Fig. 6-3-4. shows the 75% color bar signals recorded on the alignment tape.

Note: Measure using the video output terminal (Terminated at 75 Ω)


White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst signal
0.714V
1V
0.286V
0.286V
Q
I
Horizontal sync signal

Color bar signal waveform


White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Color Bar Pattern

Fig. 6-3-4. Color Bar Signals of the Alignment Tape

3-1-7. Input/Output Level and Impedance

Video input/output
Phono jack, 1 Vp-p, 75Ω,
unbalanced, sync negative
S video input/output (Hi8 model)
4-pin mini DIN
Luminance signal:
1Vp-p, 75Ω, unbalanced, sync negative
Chrominance signal:
0.286Vp-p 75Ω, unbalanced
Audio input/output
Phono jack,
Input: –7.5 dBs, input impedance more than 47 kΩ
Output: –7.5 dBs, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

3-1-8. Recording Mode (Standard 8/Hi8) switching (Hi8 model)

The record mode (Standard 8/Hi8) of this unit switches as shown in the following table. The playback mode (Standard 8/Hi8) switches automaticaly according to the recording mode of the tape played back.

Tape Used	Recording Mode
ME	Hi8
Hi8 MP	
MP	Standard 8

3-1-9. Service Mode

Additional note on adjustment

Note: After the completion of the all adjustments, cancell the service mode by either of the following ways.

1) Unplug the main power supply and remove the lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) After data on page: D and F is restored, return data of the address: 01 on page: 0 to 00. And when data on page: 2 or page: 3 is changed, return the data to the original condition.

1. Test mode setting

Set/release each test mode. Set data: 01 to page: 0, address: 01 before setting the data of page D.

Page F	Address 29

Data	Function
00	Normal
01	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10

Data	Function
00	Normal
01	Camera power ON
02	VTR power ON
03	Camera+VTR power ON

* For page D and F, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjusting remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off (8.4 Vdc).

* Be sure to return this address data to 00 after completing adjustments/repairs and press the PAUSE button of the adjusting remote commander. And set data: 00 to page: 0, address: 01.

2. Emergency Memory Address

Page F	Address 10 to 1B

Address	Contents
10	1st EMG code Target
12	Upper: MSW code when the mechanism starts shifting the 1st time Lower: MSW code when the 1st emergency occurs
13	Lower: Target MSW code of the 1st emergency occurs
14	2nd EMG code
16	Upper: MSW code when the mechanism starts shifting the 2nd time Lower: MSW code when the 2nd emergency occurs
17	Lower: Target MSW code of the 2nd emergency occurs
18	Last EMG code
1A	Upper: MSW code when the mechanism starts shifting the last time Lower: MSW code when the last emergency occurs
1B	Lower: Target MSW code of the last emergency occurs

When there are no emergency, data 00 will be written in the above addresses (10 to 1B). When the first emergency occurs, the data corresponding to the emergency will be written in the address (10 to 13) for this first emergency. In the same way, when the second emergency occurs, the data corresponding to the emergency will be written in the address (14 to 17) for this second emergency.

The data corresponding to the emergency occurring the last will be written in the address (18 to 1B) for this last emergency. Therefore the data of addresses 18 to 1B are renewed each time an emergency occurs.

Note 1: Be sure to rewrite the data of addresses 10 to 1B to 00 after repairs/adjustments.

Note 2: When rewriting the data, be sure to press the PAUSE buttton of the remote commander after setting the data.

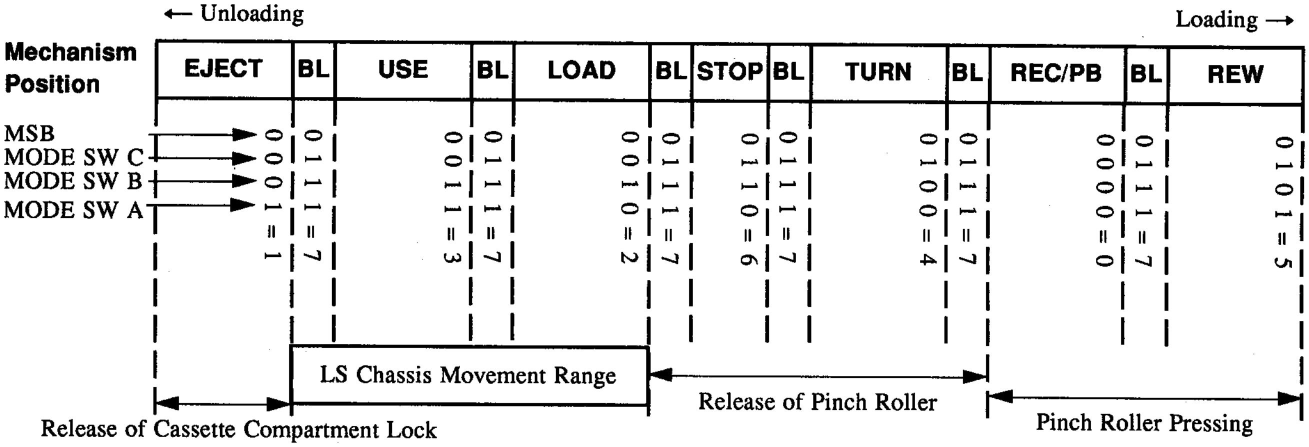
2-1. EMG CODE (Emergency Code)

The codes shown in the following table which correspond to errors that occur are recorded in addresses 10, 14, and 18.

Code	Type of Emergency
00	No error
10	Loading motor time-out during load
11	Loading motor time-out during unload
20	T reel emergency (reel slack) during unloading
21	S reel emergency (reel slack) during unloading
22	T reel emergency
23	S reel emergency
30	FG emergency at the start up of the capstan
31	FG emergency during the normal rotation of the capstan
40	FG emergency at the start up of the drum
41	PG emergency at the start up of the drum
42	FG emergency during the normal rotation of the drum
43	PG emergency during the normal rotation of the drum
44	Phase emergency during the normal rotation of the drum

2-2. MSW Codes

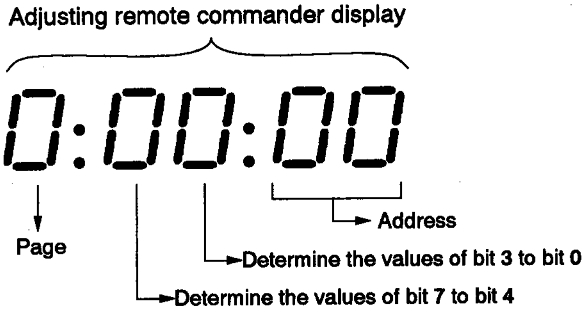
- The lower parts of the data of addresses 12, 16 and 1A represent the MSW codes (mode switch, mechanism position) when errors occurs.
- The upper parts of the data of addresses 12, 16 and 1A represent, when the mechanism position is to be moved, the MSW codes at the start of movement (when moving the loading motor).
- The lower parts of the data of addresses 13, 17 and 1B represent the MSW codes of the desired movement when the mechanism position is to be moved.


← Unloading
Loading →
Mechanism Position
EJECT
BL
USE
BL
LOAD
BL
STOP
BL
TURN
BL
REC/PB
BL
REW
MSB
MODE SW C
MODE SW B
MODE SW A
0001 = 1
0111 = 7
0011 = 3
0111 = 7
0010 = 2
0111 = 7
0110 = 6
0111 = 7
0100 = 4
0111 = 7
0000 = 0
0111 = 7
0101 = 5
LS Chassis Movement Range
Release of Pinch Roller
Pinch Roller Pressing
Release of Cassette Compartment Lock

Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
REC/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW are carried at this position. The mechanism will not move any further in the loading direction.

3. Bit value discrimination

Bit values must be discriminated using the display data of the adjusting remote commander for the following items. Use the table below to discriminate if the bit value is "1" or "0".


Adjusting remote commander display
0:00:00
Page
Address
Determine the values of bit 3 to bit 0
Determine the values of bit 7 to bit 4

	Remote commander display	Bit value			
		bit 3 or bit 7	bit 2 or bit 6	bit 1 or bit 5	bit 0 or bit 4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (c)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ→	E (E)	1	1	1	0
	F (F)	1	1	1	1

(Example) If the remote commander display data is "8E", bit values from bit7 to bit4 can be discriminated from column Ⓐ, and those from bit3 to bit0 from column Ⓑ.

4. Input/output selection check

Page 3	Address 16

Bit	Function	When bit value = 1	When bit value = 0
0	Not S video terminal input		S video terminal input
1	Not video terminal input		Video terminal input
2	Audio terminal monaural	Monaural	
3	Easy connector monaural input	Monaural	
4			
5			
6			
7			

Using method:

1) Select address: 16 of page: 3.
2) By discriminating the bit value of the display data, the state of the input/output selection can be discriminated.

5. Condensation, head clogging check

Page 3	Address 17

Bit	Function	When bit value = 1	When bit value = 0
0	Condensation state (1 hour preservation)	Condensation	
1	Head clogging	Head clogging	
2			
3			
4			
5			
6			
7			

Using method:

1) Select address: 17 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

6. VTR state check (1)

Page 3	Address 18

Bit	Function	When bit value = 1	When bit value = 0
0	Video/audio circuit PB mode	PB mode	REC/E-E mode
1			
2			
3			
4	Head clog detection when REC	Head clog	
5			
6	Recorded tape playback	Playback	
7	Capstan rotation	Rotation	

Using method:

1) Select address: 18 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

7. VTR state check (2)

Page 3	Address 19

Bit	Function	When bit value = 1	When bit value = 0
0	Eject state	Eject state	
1	Cassette insertion state	Cassette in	
2	Cassette accidental erasure prevention	Accidental erasure prevention state	
3	Tape type	ME	MP
4	Tape type	Hi8 MP	STANDARD 8, MP, ME
5	Crystal variable speed playback	Variable speed playback	
6	Variable speed playback mode	Variable speed playback mode	
7	DRUM	DRUM rotation	Stop

Using method:

1) Select address: 19 of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

8. VTR state check (3)

Page 3	Address 1A

Bit	Function	When bit value = 1	When bit value = 0
0	Playback tape recording mode	Hi8	STANDARD 8
1			
2	Audio mode	Monaural	Stereo
3			
4			
5			
6			
7			

Using method:

1) Select address: 1A of page: 3.
2) By discriminating the bit value of the display data, the state of the VTR can be discriminated.

9. Record of Use Check

Page 3	Address E0 to E9

Address	Function		Remarks
E0	Service status		For checking reset. Normal = "FF". Reset: "00"
E1	Drum rotation counted time (BCD code)	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
E2		Hour (L)	
E3		Minute	10th place digit and 1st place digit of counted time (decimal)
E4	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next
E5		Month	
E6		Day	
E7	Final condensation occurrence date (BCD code)	Year	
E8		Month	
E9		Day	

Using method:

1) The record of use data is displayed at addresses: E0 to E9 of page 3.

Note: This data will be erased when the coin lithium battery is removed (reset).

3-1-10. Page D Addrress

Note 1: The ← mark shown in the adjustment data memory column indicates that the address data is fixed and is the same as the initial value.

Note 2: The initial adjustment data value is the value after "Page D Data Initialization" and "Page D Data Modification" have been executed. It is different from the value after all adjustments have been executed.

Note 3: ( ): US, Canadian model
[ ]: E, Hong Kong, Tourist model
< >: US, E, Hong Kong, Tourist model
{ }: Canadian model

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
10	00	00	00	00	←
11	(02)[03]	(02)[03]	(02)[03]	(02)[03]	←
12	6E	06	06	06	←
13	31	31	31	31	←
14	17	17	17	14	←
15	F0	00	00	00	←
16	00	00	00	00	←
17	<0C>	<0C>	<0C>	<0C>	←
18	00	08	08	08	←
19	16	16	16	16	←
1A	37	33	37	30	←
1B	15	11	11	11	←
1C	19	19	19	19	←
1F	10	10	10	10	←
21	(30)[60]	(30)[60]	(30)[60]	15	←
22	00	00	00	00	←
23	81	51	41	31	←
24	12	12	12	12	
25	64	64	64	64	
26	04	04	04	04	
27	F9	F9	F9	F9	
28	80	80	80	80	
29	85	85	85	85	
2A	91	91	91	91	
2B	A0	A0	A0	A0	
2C	A8	A8	A8	A8	

Table 6-3-3 (1).

Address	Adjustment Data				
	Initial Value				Memo Column
	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31	
2D	05	05	05	05	←
2E	03	03	03	03	←
2F	01	01	01	01	←
30	05	05	05	05	←
31	73	73	73	73	←
32	24	24	24	24	←
33	CC	CC	CC	CC	←
34	07	07	07	07	←
35	80	80	80	80	
36	C9	C9	C9	C9	←
37	02	02	02	02	←
38	02	02	02	02	←
39	04	04	04	04	←
3A	0A	0A	0A	0A	←
3B	32	32	32	32	←
3C	08	08	08	08	←
3D	80	80	80	80	←
40 to 51					
52	6D	6D	6D	6D	
53	5E	5E	5E	5E	
54	62	62	62	62	
55	84	84	84	84	
56	6C	6C	6C	6C	
57	71	71	71	71	
58	80	80	80	80	
59	3B	3B	3B	3B	
5A	5F	5F	5F	5F	
5B	84	84	84	84	
5C	85	85	85	85	
5D	6D	6D	6D	6D	
5E	62	62	62	62	
5F	85	85	85	85	
60	5E	5E	5E	5E	←
61	62	62	62	62	←
62	6A	6A	6A	6A	←
63	BF	BF	BF	BF	←

Table 6-3-3 (2).

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENTS

1. Initialization of E, F Page Data

If the E, F page data is erased due to some reason, perform "Initialization of E, F Page Data", "Modification of F Page Data", and "Modification of E Page Data" of camera system adjustments.

2. Initialization of D Page Data

Note: If the D page data has been initialized, perform "LCD System Adjustment" and "Battery Down Adjustment" again.

Adjusting page	D
Adjusting address	10 to 63

Initialization method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 2D to page: 3, address: 00.
3) Set data: 2D to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
4) Check that the data of page: 3, address: 02 is 01.
5) Set data: 29 to page: 3, address: 00.
6) Set data: 29 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
7) Set data: 00 to page: 0, address: 01.
8) After performing "Modification of D Page Data", perform "LCD System Adjustment" and "Battery Down Adjustment" again.

3. Modification of D Page Data

If the D page data has been initialized, change the data as shown in the following table by manual input.

Note 1: Before changing the data, set data: 01 to page: 0, address: 01.

Note 2: To write in the non-volatile memory (EEPROM) after changing the data, press the PAUSE button of the adjusting remote commander each time to set the data.

Note 3: After changing the data, set data: 00 to page: 0, address: 01, and perform "LCD System Adjustment" and "Battery Down Adjustment".

( ): US, Canadian model
[ ]: E, Hong Kong, Tourist model
< >: US, E, Hong Kong, Tourist model
{ }: Canadian model

Address	CCD-TRV81	CCD-TRV51	CCD-TRV41	CCD-TRV31
10	00	00	00	00
11	(02)[03]	(02)[03]	(02)[03]	(02)[03]
12	6E	06	06	06
13	31	31	31	31
14	17	17	17	14
15	F0	00	00	00
16	00	00	00	00
17	<0C>	<0C>	<0C>	<0C>
18	00	08	08	08
19	16	16	16	16
1A	37	33	37	30
1B	15	11	11	11
1C	19	19	19	19
1F	10	10	10	10
21	(30)[60]	(30)[60]	(30)[60]	15
22	00	00	00	00
23	81	51	41	31
24	12	12	12	12
25	64	64	64	64
26	04	04	04	04
27	F9	F9	F9	F9
2D	05	05	05	05
2E	03	03	03	03
2F	01	01	01	01
30	05	05	05	05
31	73	73	73	73
32	24	24	24	24
33	CC	CC	CC	CC
34	07	07	07	07
36	C9	C9	C9	C9
37	02	02	02	02
38	02	02	02	02
39	04	04	04	04
3A	0A	0A	0A	0A
3B	32	32	32	32
3C	08	08	08	08
3D	80	80	80	80

4. Battery End Adjustment (VC-177 board)

Set the battery end voltage.
If the voltage is incorrect, the life of the battery will shorten.
The image at the battery end will also be rough.

Mode	Camera record
Signal	Arbitrary
Measurement Point	LCD display of the adjusting remote commander
Measuring Instrument	
Adjustment Page	D
Specified Value	28 to 2C, 35

Note: The lens block and cabinet (R) must be connected.

Switch setting
1) AUTO FOCUS switch ....OFF

Connection:
1) Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 6-3-5.

Adjusting method:
1) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is 6.1 ± 0.1 Vdc.
2) Load a cassette, and set to the camera recording mode.
3) Set data: 01 to page: 0, address: 01.
4) Decrease the output voltage of the regulated power supply so that the digital voltmeter display is 5.50 ± 0.01 Vdc.
5) Set data: 03 to page: 0, address: FF.
6) Set data: 01 to page: 2, address: 01.
7) Select page: 3, address: 31, read the adjusting remote commander display data, and this data is named Dref.
8) Set data: 00 to page: 2, address: 01.
9) Set data: 00 to page: 0, address: FF.
10) Set data Dref to page: D, address: 28, and press the PAUSE button of the adjusting remote commander.
11) Set the Dref to page: D, address: 35, and press the PAUSE button of the adjusting remote commander.
12) Convert Dref to decimal notation, and obtain Dref′. (Refer to Table 6-1-4. "Hexadecimal notation – decimal notation conversion table")
13) Calculate D29′, D2A′, D2B′ and D2C′ using following equations (decimal notation calculation).
    D29′ = Dref′+5
    D2A′ = Dref′+32
    D2B′ = Dref′+53
    D2C′ = Dref′+64
14) Convert D29′, D2A′, D2B′ and D2C′ to hexadecimal notation, and obtain D29, D2A, D2B and D2C.
15) Set data: D29 to page: D, address: 29, and press the PAUSE button of the adjusting remote commander.
16) Set data: D2A to page: D, address: 2A, and press the PAUSE button.
17) Set data: D2B to page: D, address: 2B, and press the PAUSE button.
18) Set data: D2C to page: D, address: 2C, and press the PAUSE button.
19) Set data: 00 to page: 0, address: 01.

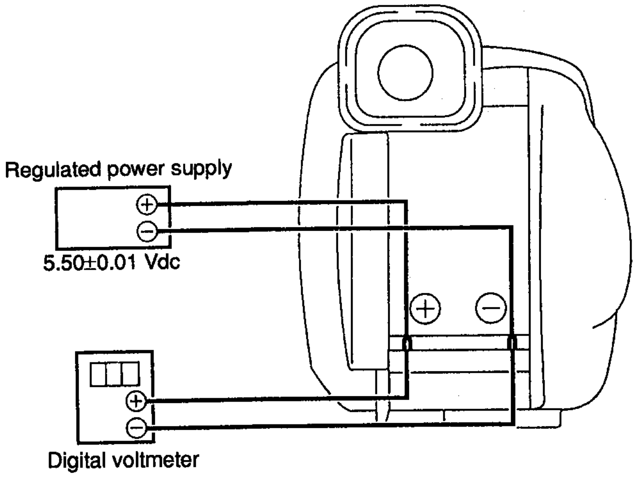


Fig. 6-3-5.

3-3. SERVO SYSTEM ADJUSTMENTS

1. CAP FG Offset Adjustment (VC-177 board)

Improve the capstan servo characteristic. If it is not correct, jitters will increase.

Mode	VTR record (SP mode)
Signal	Arbitrary
Measurement Point	Pin ③ of CPC (CAP FG) on FP-379 flexible board
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	5C
Specified Value	Duty = 50 ± 1.5%

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 81 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Check that the data of page: 2, address: 02 is 01.
4) Check that Duty of CAP FG signal satisfies the specified value. If not, set data: 00 to page: 2, address: 01, and press the PAUSE button, and then, repeat steps 2) to 4).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

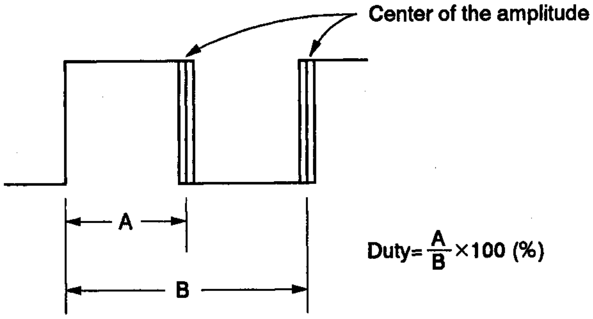


Fig. 6-3-6.

2. Switching Position Adjustment (VC-177 board)

If deviated in this case causes switching noise or jitter on the played back screen.

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1NP)
Measurement Point	CH1: Pin ④ of CPC (RF SWP) on FP-379 flexible board CH2: Pin ⑨ of CPC (PB RF) on FP-379 flexible board
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	36, 37
Specified Value	t1 = 0 ± 10 μsec

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: F, address: 37 and minimize "t1", and press the PAUSE button of the adjusting remote commander. (Coarse adjustment)
3) Change the data of page: F, address: 36, and adjust so that the switching position (t1) becomes the specified value. (Fine adjustment)
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 0, address: 01.

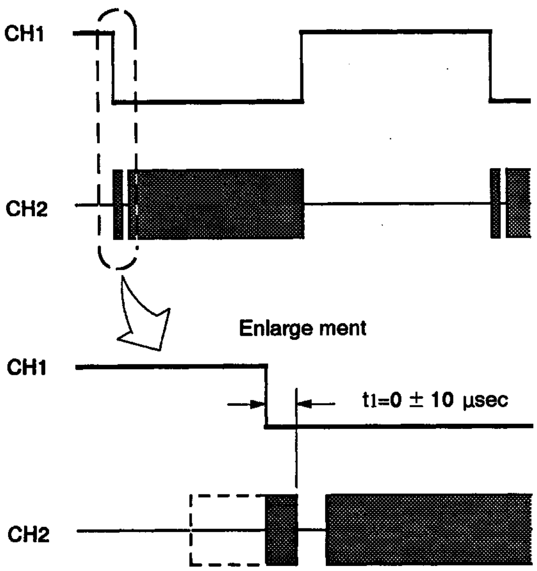


Fig. 6-3-7.

3-4. VIDEO SYSTEM ADJUSTMENTS

Video system adjustments must be performed in the following order.

[Adjusting Order]

1. 28 MHz origin oscillation adjustment
2. Filter f0 adjustment
3. Y OUT level adjustment
4. C OUT level adjustment
5. RP filter f0 adjustment
6. AFC f0 adjustment
7. REC Y current adjustment
8. REC C current adjustment

1. 28 MHz Origin Oscillation Adjustment (VC-177 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Pin ⑫ of IC202
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	3A
Specified Value	f = 1431818 ± 71 Hz

Note: If the x2 frequency is displayed, insert a 1 kΩ resistor between the measuring point and probe.

Adjusting method:
1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: F, address: 3A, and set the oscillation frequency to the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

2. Filter fo Adjustment (VC-177 board)

Minimize the chroma signal residual components during composite video signal input.

Mode	VTR stop
Signal	Color bar (Video input)
Measurement Point	Pin ⑬ of CPC of FP-379 flexible board (EZ I/O)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	66
Specified Value	Minimum residual chroma signal components

Note: Do not insert a plug into the S video terminal. (Hi8 model)

Adjusting method:
1) Set data: 01 to page: 0, address: 01.
2) Set data: 33 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 66, and minimize the residual chroma signal components (A).
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

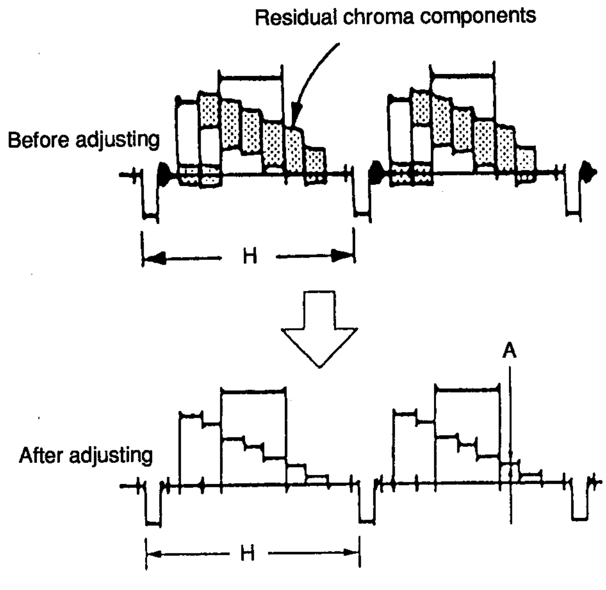


Fig. 6-3-8.

3. Y OUT Level Adjustment (VC-177 board)

Set the Y signal output level.

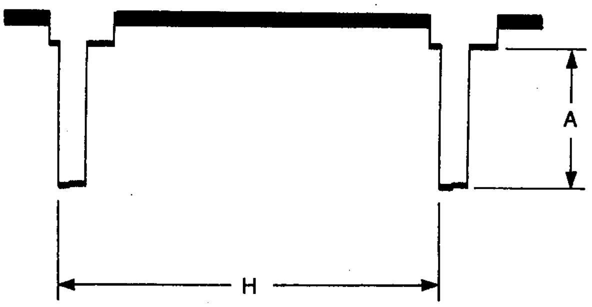
Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Hi8 model: Y signal terminal of S VIDEO terminal (75Ω terminated) Standard 8 model: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	62
Specified Value	A = 286 ± 5 mV

Note: Insert the plug into the S video terminal. (Hi8 model)

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 62, and set the SYNC level (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

Hi8 model



Standard 8 model

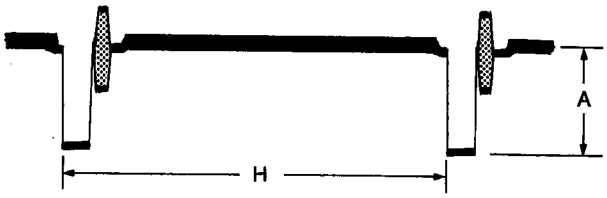


Fig. 6-3-9.

4. C OUT Level Adjustment (VC-177 board)

Set the chroma signal output level.

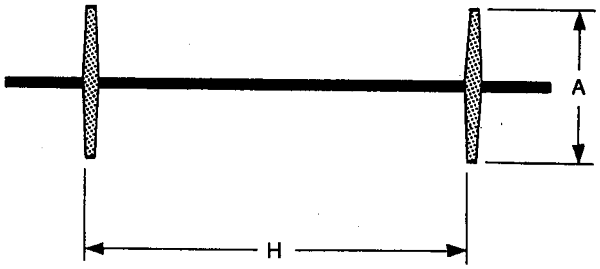
Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Hi8 model: Chroma signal terminal of S VIDEO terminal (75Ω terminated) Standard 8 model: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64
Specified Value	A = 286 ± 5 mV

Note: Insert the plug into the S video terminal. (Hi8 model)

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 03 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 64, and set the burst level (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 2, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

Hi8 model



Standard 8 model

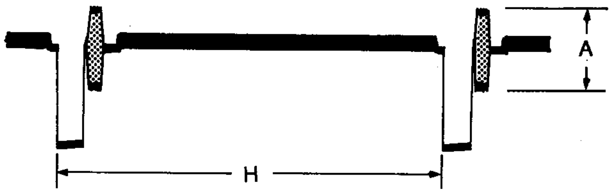


Fig. 6-3-10.

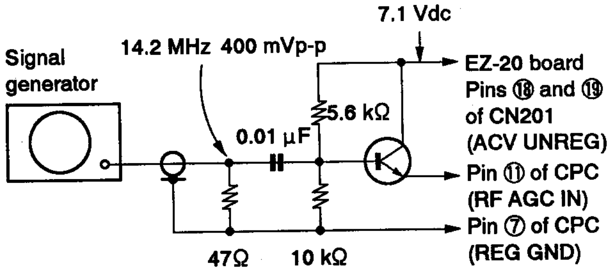
5. RP Filter fo Adjustment (VC-177 board)

Adjust the LPF of the playback RF amplifier.

Mode	Camera E-E
Subject	Arbitrary
Measurement Point	Pin ⑭ of CPC of FP-379 flexible board (RF AGC OUT)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	67
Specified Value	A = Below 10 mVp-p

Connection:

1) Input a 14.2 MHz, 400 mVp-p CW signal to Pin ⑪ of CPC of the FP-379 flexible board (RF AGC IN).



Transistor: General NPN transistor (2SC403, etc.)
47 Ω resistor: 1-249-401-11
5.6 kΩ resistor: 1-249-426-11
10 kΩ resistor: 1-249-429-11
0.01 μF capacitor: 1-101-004-00

Fig. 6-3-11.

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 35 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Set data: 0E to page: D, address: 12 only for Standard 8 models, and press the PAUSE button of the adjusting remote commander.
4) Change the data of page: F, address: 67, and minimize the 14.2 MHz signal level (A).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 06 to page: D, address: 12 only for Standard 8 models, and press the PAUSE button of the adjusting remote commander.
7) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
8) Set data: 00 to page: 0, address: 01.

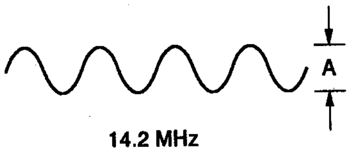


Fig. 6-3-12.

6. AFC fo Adjustment (VC-177 board)

Adjust the pull-in range of the A/D converted clock generator during playback.

Mode	VTR stop
Signal	Color bar (Video input)
Measurement Point	Pin ⑫ of CPC of FP-379 flexible board (AFC fo)
Measuring Instrument	Digital voltmeter
Adjustment Page	F
Adjustment Address	63
Specified Value	A = 2.2 ± 0.05 Vdc

Note: Do not insert the plug in the S video terminal. (Hi8 model)

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Set data: 31 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
3) Change the data of page: F, address: 63, and set the DC voltage (A) to the specified value.
4) Press the PAUSE button of the adjusting remote commander.
5) Set data: 00 to page: 3, address: 01, and press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

7. Hi8 REC Y Current Adjustment (VC-177 Board) (Hi8 model)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑥ of CPC of FP-379 flexible board (REC RF)
Measuring Instrument	Oscilloscope (20 MHz band limitation: OFF)
Adjustment Page	F
Adjustment Address	70, 71, 72, 73
Specified Value	A = 215 ± 5 mV

Adjusting method:

1) Insert a Hi8 ME tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Note down the data of page: F, address: 76, set data: 00, and press the PAUSE button of the adjusting remote commander.
4) Note down the data of page: F, address: 77, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Input data: 00 to page: F, addresses: 70, 72, 73.
   Note: After setting the data, be sure to press the PAUSE button of the adjusting remote commander.
6) Change the data of page: F, address: 71, and set the REC Y signal level (A) to the specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Read the data (D_{71}) of page: F, address: 71.
9) Input the read data (D_{71}) to page: F, addresses: 70, 72, and 73.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
10) After setting the data noted down at step 3) for page: F, address: 76, press the PAUSE button of the adjusting remote commander.
11) After setting the data noted down at step 4) for page: F, address: 77, press the PAUSE button of the adjusting remote commander.
12) Set data: 00 to page: 0, address: 01.

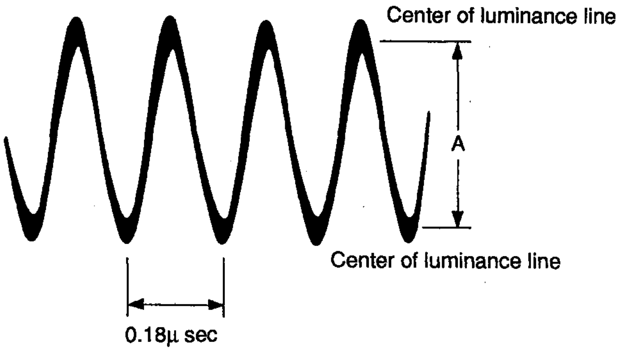


Fig. 6-3-13.

8. Standard 8 REC Y Current Adjustment (VC-177 Board) (Standard 8 model)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑥ of CPC of FP-379 flexible board (REC RF)
Measuring Instrument	Oscilloscope (20 MHz band limitation: OFF)
Adjustment Page	F
Adjustment Address	71
Specified Value	A = 230 ± 5 mV

Adjusting method:

1) Insert a Hi8 ME tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Note down the data of page: F and address: 76, then set data: 00 and press the PAUSE button of the adjusting remote commander.
4) Note down the data of page: F and address: 77, then set data: 00 and press the PAUSE button of the adjusting remote commander.
5) Change the data of page: F, address: 71, and set the REC Y signal level (A) to the specified value.
6) Press the PAUSE button of the adjusting remote commander.
7) After setting the data noted at step 3) for page: F, address: 76, and press the PAUSE button of the adjusting remote commander.
8) After setting the data noted at step 4) for page: F, address: 77, and press the PAUSE button of the adjusting remote commander.
9) Set data: 00 to page: 0, address: 01.

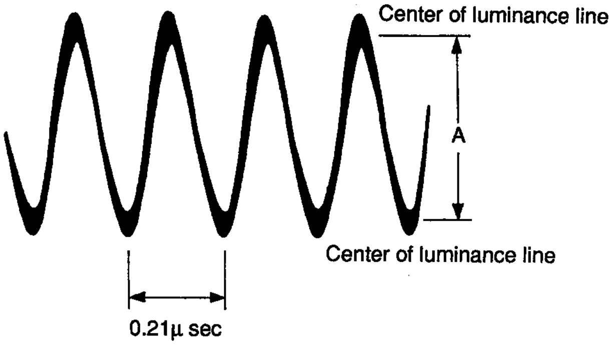


Fig. 6-3-14.

9. Hi8 REC C Current Adjustment (VC-177 Board) (Hi8 Model)

Adjust REC chroma signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	CH1: Pin ⑥ of CPC of FP-379 flexible board (REC RF) CH2: Pin ④ of CPC of FP-379 flexible board (RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	76 to 7D
Specified Value	A = 47.0 ± 1.6 mV

Connection:

1) Short-circuit R1157 (82Ω, near Pin ㉒ of IC102) using a jumper wire.
2) Short-circuit R1018 (6.8 kΩ) using a jumper wire.
3) Short-circuit R1113 (3.3 kΩ) using a jumper wire.

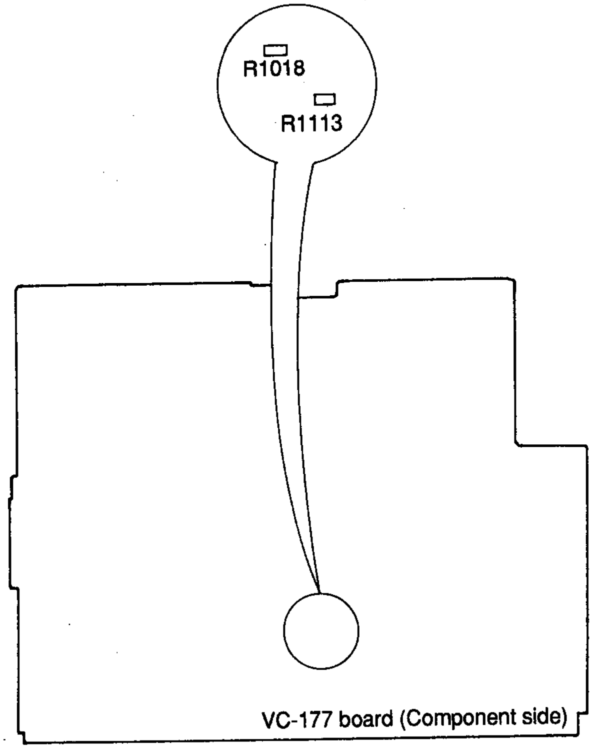


Fig. 6-3-15.

Adjusting method:

1) Insert a Hi8 ME tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 30 to page: 2, address: 61.
4) Note down the data of page: F and address: 70, then set data: 00 and press the PAUSE button of the adjusting remote commander.
5) Note down the data of page: F and addresses: 71, 72, 73, then input data: 00 to each address.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
6) Change the data of page: F, address: 77, and set the REC chroma signal level (A) to the specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Read data (D77) of page: F, address: 77.
9) Input the read data (D77) to addresses: 76, 78, 79 of page: F.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
10) Convert D77 to a decimal number, to obtain D77′. (Refer to Table 6-1-4. Hexadecimal-Decimal Conversion Table).
11) Calculate the adjustment data (decimal) from the following equation (decimal calculation), convert it to a hexadecimal number, and input to each adjustment address.
    Address: 7A D7A′ = D77′ − 31
    Address: 7B D7B′ = D77′ − 31
    Address: 7C D7C′ = D77′ − 31
    Address: 7D D7D′ = D77′ − 31
    Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
12) After setting the data noted down at step 4) for page: F, address: 70, press the PAUSE button of the adjusting remote commander.
13) After setting the data noted down at step 5) for page: F, address: 71, 72, 73, press the PAUSE button of the adjusting remote commander.
    Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
14) Set data: 00 to page: 2, address: 61.
15) Set data: 00 to page: 0, address: 01.

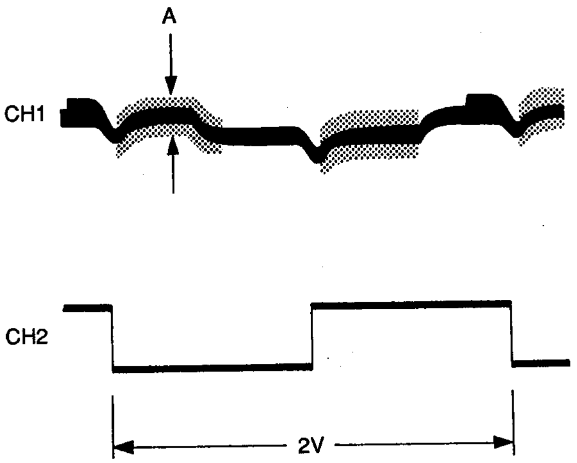


Fig. 6-3-16.

10. Standard 8 REC C Current Adjustment (Standard 8 model)

Adjust REC chroma signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	CH1: Pin ⑧ of CPC of FP-379 flexible board (REC RF) CH2: Pin ④ of CPC of FP-379 flexible board (RF SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	77
Specified Value	A = 42.3 ± 1.6 mV

Connection:

1) Short-circuit R1157 (82Ω, near Pin ㉒ of IC102) using a jumper wire.
2) Short-circuit R1018 (6.8 kΩ) using a jumper wire.
3) Short-circuit R1113 (3.3 kΩ) using a jumper wire.

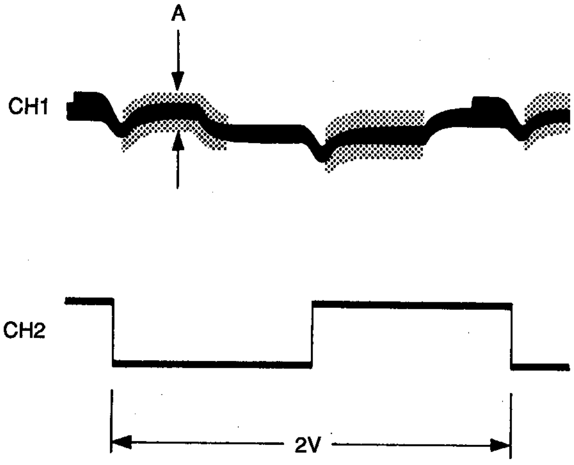


Fig. 6-3-17.

Adjusting method:

1) Insert a Hi8 ME tape, and set the recording mode.
2) Set data: 01 to page: 0, address: 01.
3) Set data: 30 to page: 2, address: 61.
4) Note down the data of page: F, address: 70, set data: 00, and press the PAUSE button of the adjusting remote commander.
5) Note down the data of page: F and address: 71, 72, 73 then input data: 00 to each address.
6) Change the data of page: F, address: 77, and set the REC chroma signal level (A) to the specified value.
7) Press the PAUSE button of the adjusting remote commander.
8) Read data (D77) of page: F, address: 77.
9) Input the read data (D77) to address: 76, 78, 79, 7A, 7B, 7C, 7D of page: F.
   Note: After setting each data, be sure to press the PAUSE button of the adjusting remote commander.
10) After setting the data noted down at step 4) for page: F, address: 70, press the PAUSE button of the adjusting remote commander.
11) Set data: 00 to page: 2, address: 61.
12) Set data: 00 to page: 0, address: 01.

3-5. STEREO AUDIO SYSTEM ADJUSTMENT (CCD-TRV41/TRV51/TRV81)

- Perform the adjustment using the color bar signal as a video signal input for VIDEO terminal.
- The items to be adjusted for the R channel will be indicated within the [ ], in regard to the adjusting items to be adjusted for both L and R channels.
- Set the Hi-Fi sound switch in the menu display to "STEREO" position unless specified otherwise.

Note:

1) When inputting the audio signal, input the same signal to both the L and R channels, unless specified otherwise.
2) Be sure to insert the plug (Shorting plug or dummy plug, etc) into the AUDIO terminal (Right). If the plug is not inserted, the monaural mode well be set, and correct adjustments can not be carried out.
   [Monaural mode]
   During recording.............REC AFM RF 1.7MHz carriear will not be output.
   During playback..............The L+R signal will be output from the AUDIO terminal (Left).

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 6-3-18, and perform adjustments at the power switch [VTR] position.

[Adjustment Procedure]

1) 1.5 MHz deviation adjustment
2) 1.7 MHz deviation adjustment
3) BPF adjustment

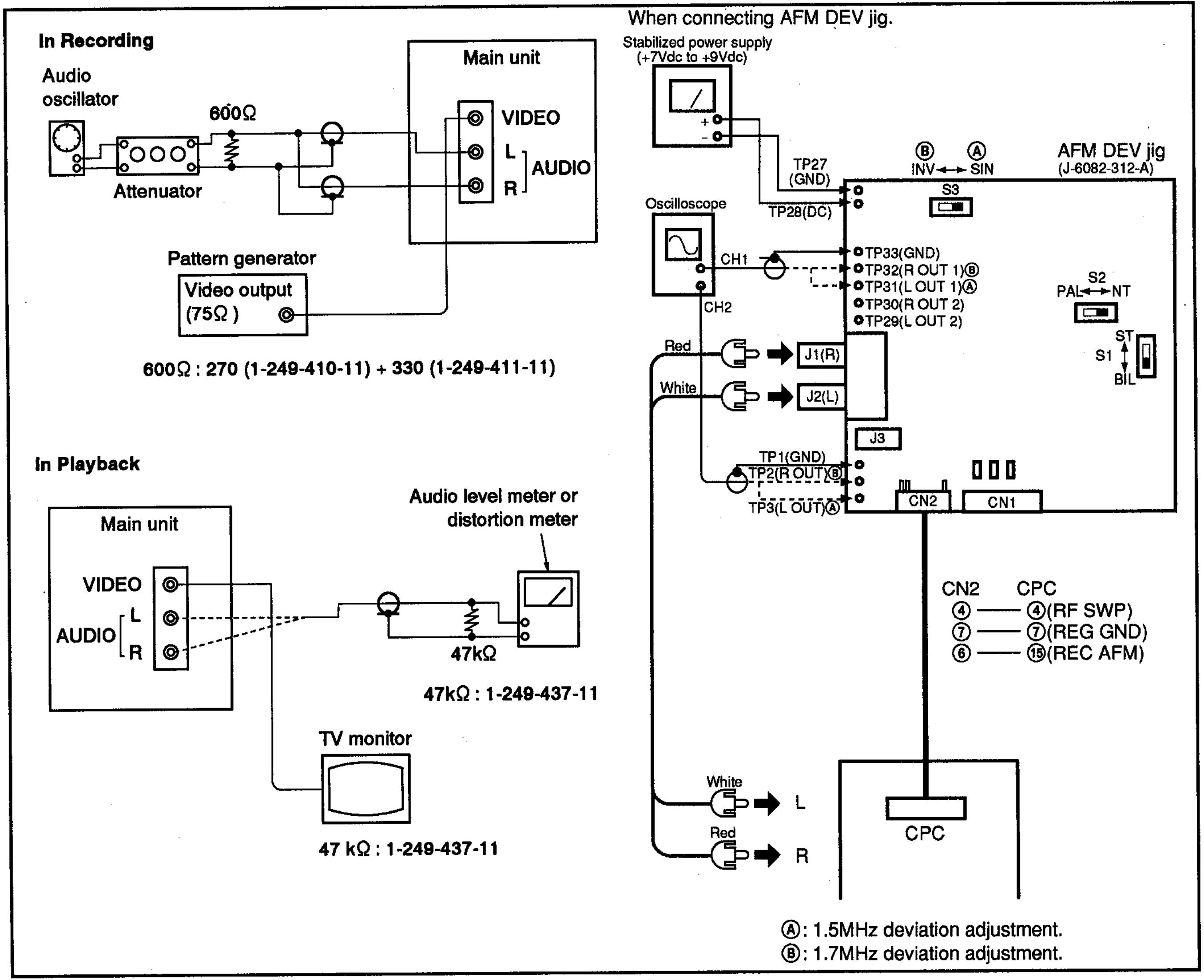

In Recording
Audio oscillator
600Ω
Attenuator
Main unit
VIDEO
L
R
AUDIO
Pattern generator
Video output (75Ω)
600Ω : 270 (1-249-410-11) + 330 (1-249-411-11)
In Playback
Main unit
VIDEO
AUDIO L
R
Audio level meter or distortion meter
47kΩ
47kΩ : 1-249-437-11
TV monitor
47 kΩ : 1-249-437-11
When connecting AFM DEV jig.
Stabilized power supply (+7Vdc to +9Vdc)
+
-
TP27 (GND)
TP28(DC)
Oscilloscope
CH1
CH2
TP33(GND)
TP32(R OUT 1)Ⓑ
TP31(L OUT 1)Ⓐ
TP30(R OUT 2)
TP29(L OUT 2)
Ⓑ Ⓐ
INV↔SIN
S3
AFM DEV jig (J-6082-312-A)
S2
PAL↔NT
ST
S1
BIL
Red
J1(R)
White
J2(L)
J3
TP1(GND)
TP2(R OUT)Ⓑ
TP3(L OUT)Ⓐ
CN2
CN1
CN2 CPC
④ —— ④(RF SWP)
⑦ —— ⑦(REG GND)
⑥ —— ⑮(REC AFM)
White
L
Red
R
CPC
Ⓐ: 1.5MHz deviation adjustment.
Ⓑ: 1.7MHz deviation adjustment.

Fig. 6-3-18.

1. 1.5 MHz Deviation Adjustment

Sets the spectrum of the L-ch (L+R/2 signal) level modulated during recording. If deviated, the crosstalk of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the right and left audio input terminals (Note 1)
Measuring point	CH1: AFM DEV jig TP31 CH2: AFM DEV jig TP3
Measuring device	Oscilloscope ADD mode CH2 INV mode
Adjustment page	F
Adjustment address	5E
Specified value	The difference between CH1 signal and CH2 signal should be minimum.

Connection:

1) Connect CN2 of the AFM DEV jig to CPC of the FP-379 flexible board.
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28 (DC), TP27 (GND) of the AFM DEV jig to the DC power supply (+7 Vdc to +9 Vdc).
4) Set the AFM DEV jig switches to the following positions.
   S1 ....BIL position
   S2 ....NT position
   S3 ....SIN position

Adjustment Method:

1) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
2) Set the oscilloscope to the ADD mode and CH2 to the INV (inverse) mode.
3) Set data: 01 to page: 0, address: 01.
4) Change the data of page: F, address: 5E and minimize the audio signal level difference (A).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

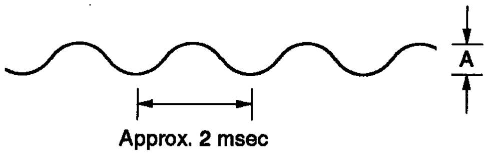


Fig. 6-3-19.

2. 1.7 MHz Deviation Adjustment

Sets the spectrum of the R-ch (L–R/2 signal) level modulated during recording. If deviated, the crosstalk of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the right and left audio input terminals
Measuring point	CH1: AFM DEV jig TP32 CH2: AFM DEV jig TP2
Measuring device	Oscilloscope ADD mode CH2 INV mode
Adjustment page	F
Adjustment address	5F
Specified value	The difference between CH1 signal and CH2 signal should be minimum.

Connection:

1) Connect CN2 of the AFM DEV jig to CPC of the FP-379 flexible board.
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28 (DC), TP27 (GND) of the AFM DEV jig to the DC power supply (+7 to +9 Vdc).
4) Set the AFM DEV jig switches to the following positions.
   S1 ....BIL position
   S2 ....NT position
   S3 ....INV position

Adjustment Method:

1) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
2) Set the oscilloscope to the ADD mode and CH2 to the INV (inverse) mode.
3) Set data: 01 to page: 0, address: 01.
4) Change the data of page: F, address: 5F and minimize the audio signal level difference (A).
5) Press the PAUSE button of the adjusting remote commander.
6) Set data: 00 to page: 0, address: 01.

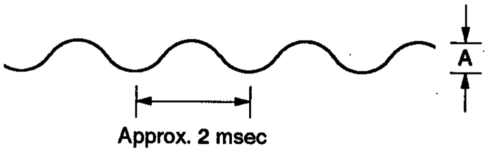


Fig. 6-3-20.

3. BPF fo Adjustment

Sets the BPF passing frequency so that the AFM signal can separate from the playback RF signal properly. If deviated. the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11NS)
Measuring point	Right or left audio output terminal
Measuring device	Distortion meter
Adjustment page	F
Adjustment address	60
Specified value	The right and left channel distortion rates should be almost the same (within ± 1%) and minimum

Adjustment Method:

1) Set data: 01 to page: 0, address: 01.
2) Set the Hi-Fi sound switch (menu display) to “ $\boxed{2}$ ”.
3) Change the data of page: F, address: 60 and minimize the distortion rate.
4) Press the PAUSE button of the adjusting remote commander.
5) Set the Hi-Fi sound switch to “ $\boxed{1}$ ”.
6) Change the data of page: F, address: 60 and minimize the distortion rate.
7) Press the PAUSE button of the adjusting remote commander.
8) Repeat steps 2) to 7) and set the data of address: 60 so that the distortions rates when the Hi-Fi sound switch is set to “ $\boxed{2}$ ” and set to “ $\boxed{1}$ ” respectively are almost the same and minimum.
9) Press the PAUSE button of the adjusting remote commander.
10) Set data: 00 to page: 0, address: 01.
11) Set the Hi-Fi sound switch to “STEREO”.

3-6. MONAURAL AUDIO SYSTEM ADJUSTMENT (CCD-TRV31)

- Perform the adjustment using the color bar signal as a video signal input for VIDEO terminal

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments besides the video system measuring instruments as shown in Fig. 6-3-21, and perform adjustments with the power switch [VTR] position.

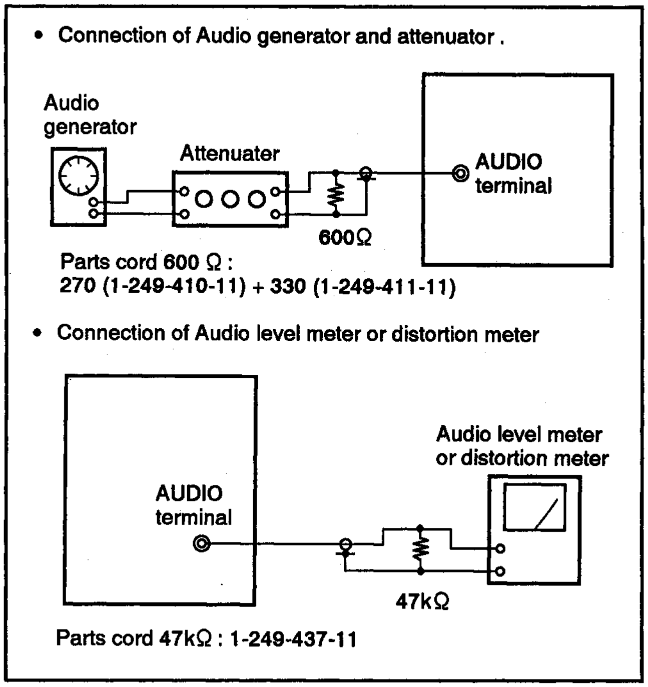

• Connection of Audio generator and attenuator.
Audio generator
Attenuater
AUDIO terminal
600Ω
Parts cord 600 Ω :
270 (1-249-410-11) + 330 (1-249-411-11)
• Connection of Audio level meter or distortion meter
AUDIO terminal
Audio level meter or distortion meter
47kΩ
Parts cord 47kΩ : 1-249-437-11

Fig. 6-3-21.

1. 1.5 MHz Deviation Adjustment

Adjust to the optimum audio FM signal deviation.

If the adjustment is not correct, its playback level will differ from that of other units.

Mode	Playback
Signal	Alignment tape: For checking the operation (WR5-5NSP)
Measurement Point	Audio output terminal
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	5E
Specified Value	–7.5 ± 0.5 dBs

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: F, address: 5E, and adjust so that the 400 Hz signal level becomes the specified value.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

2. BPF fo Adjustment

Adjust to the optimum audio BPF characteristics of the IC.

If the characteristics is not correct, the distortion rate and S/N ratio will worsen.

Mode	Playback
Signal	Alignment tape: For checking operations (WR5-5NSP)
Measurement Point	Audio output terminal
Measuring Instrument	Distortion meter
Adjustment Page	F
Adjustment Address	60
Specified Value	Minimum distortion

Adjusting method:

1) Set data: 01 to page: 0, address: 01.
2) Change the data of page: F, address: 60 and adjust so that the distortion is minimum.
3) Press the PAUSE button of the adjusting remote commander.
4) Set data: 00 to page: 0, address: 01.

3-7.

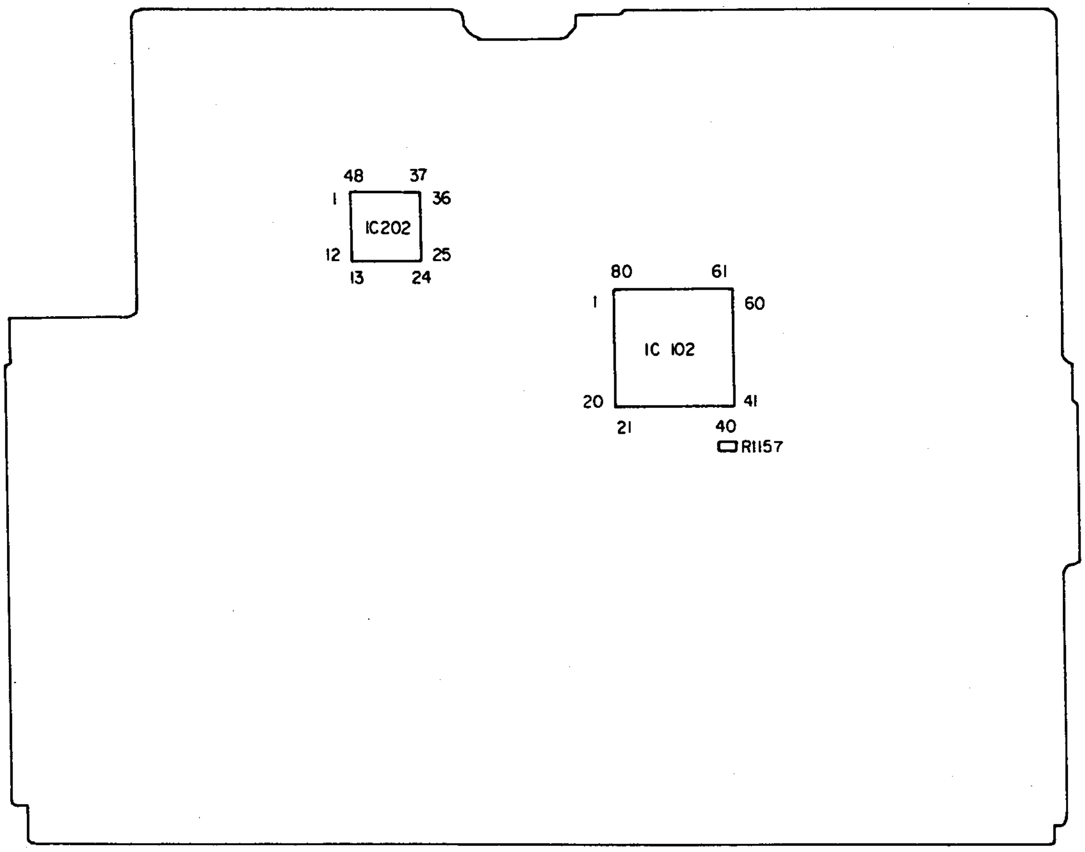
IC.
nd S/N

so that

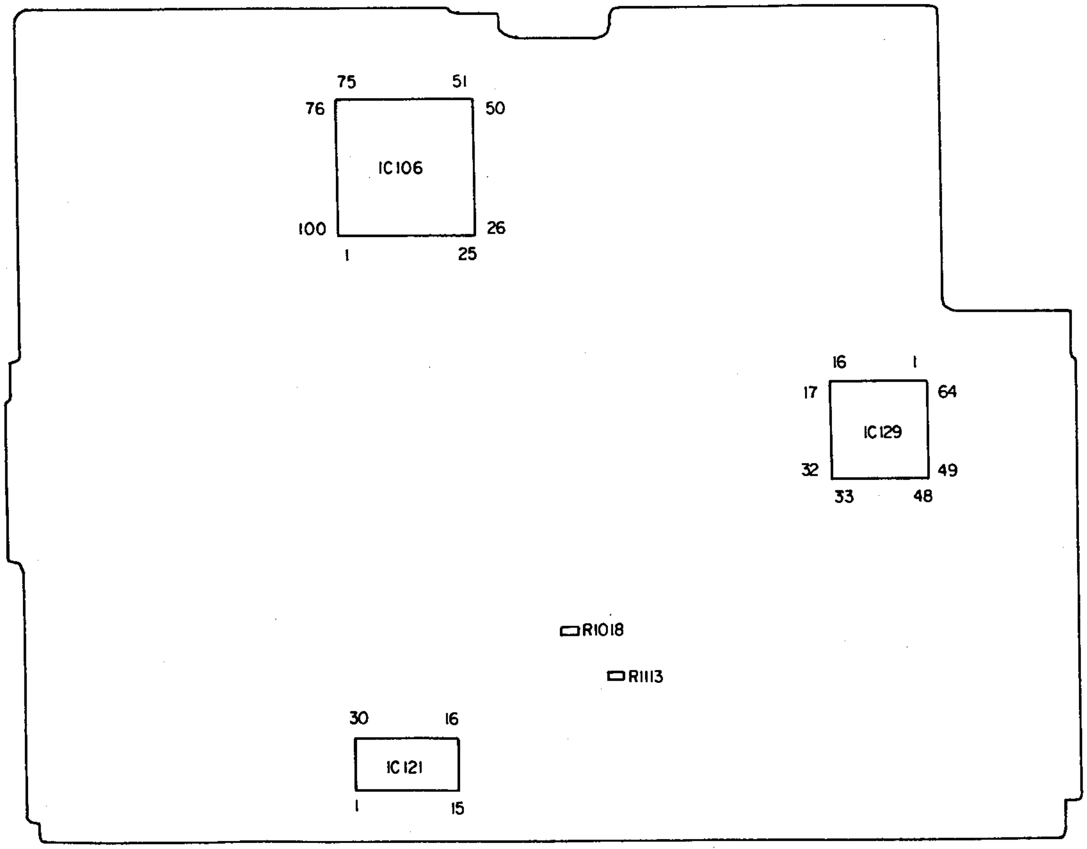
mander.

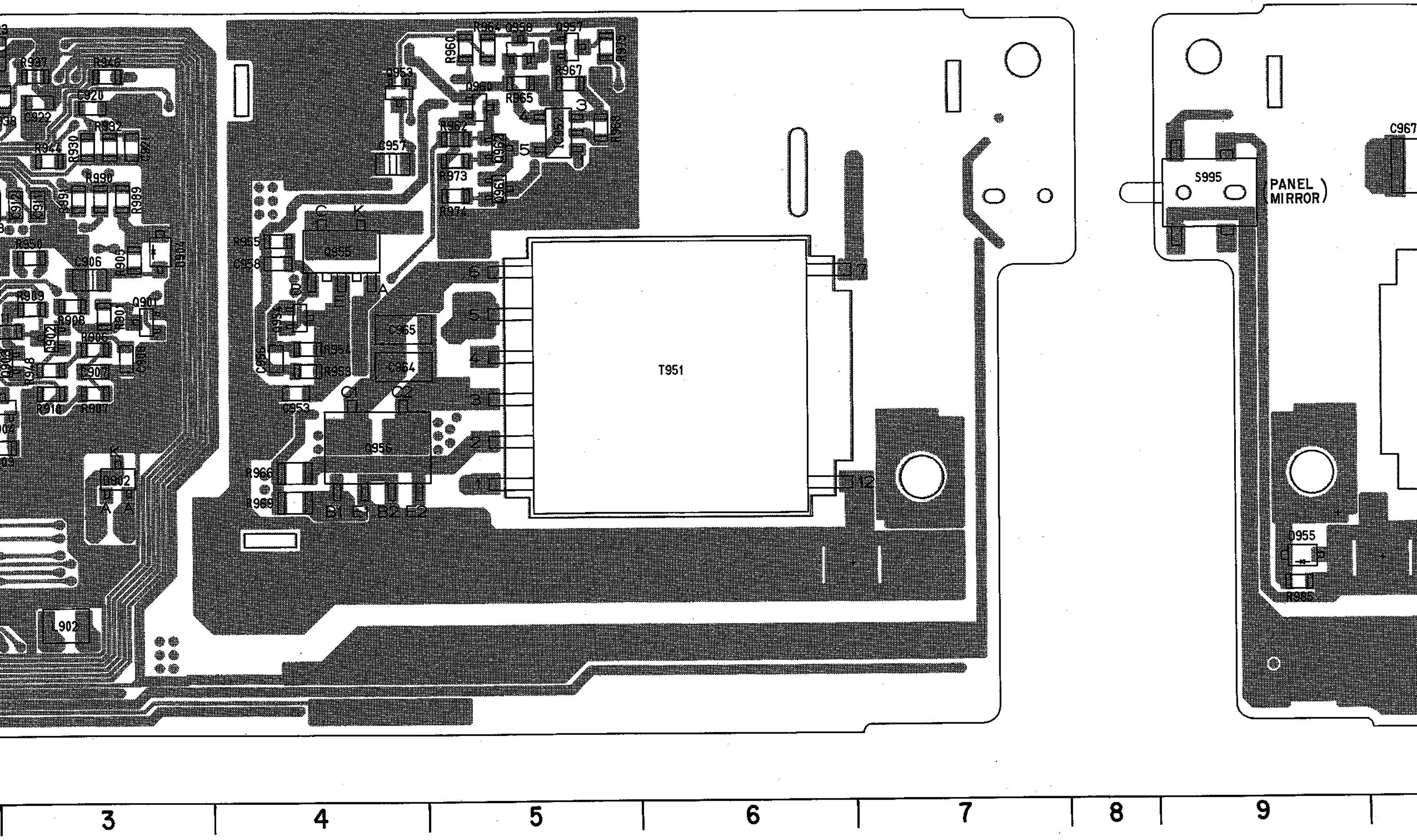
3-7. ARRANGEMENT DIAGRAM FOR ADJUSTMENT PARTS

VC-177 BOARD (COMPONENT SIDE)


48
37
1
36
IC202
12
25
13
24
80
61
1
60
IC 102
20
41
21
40
R1157

VC-177 BOARD (CONDUCTOR SIDE)


75
51
76
50
IC106
100
26
1
25
16
1
17
64
IC129
32
49
33
48
R1018
R1113
30
16
IC121
1
15

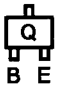

R937
R346
C920
C922
R932
R930
R944
C921
R990
R989
D904
C906
R905
Q901
R906
R907
R918
C907
D902
K
A
L902
R960
R964
Q958
Q957
R963
R967
Q960
R965
R962
IC952
R973
R974
Q961
C957
C
K
Q955
R955
C958
A
C965
C964
R951
R953
C1
C2
C953
Q956
R966
R969
B1
E1
B2
E2
1
2
3
4
5
6
7
12
T951
S995
PANEL
MIRROR
C967
D955
R985
3
4
5
6
7
8
9

D-65
LCD Drive)

AV-34
In/Out)

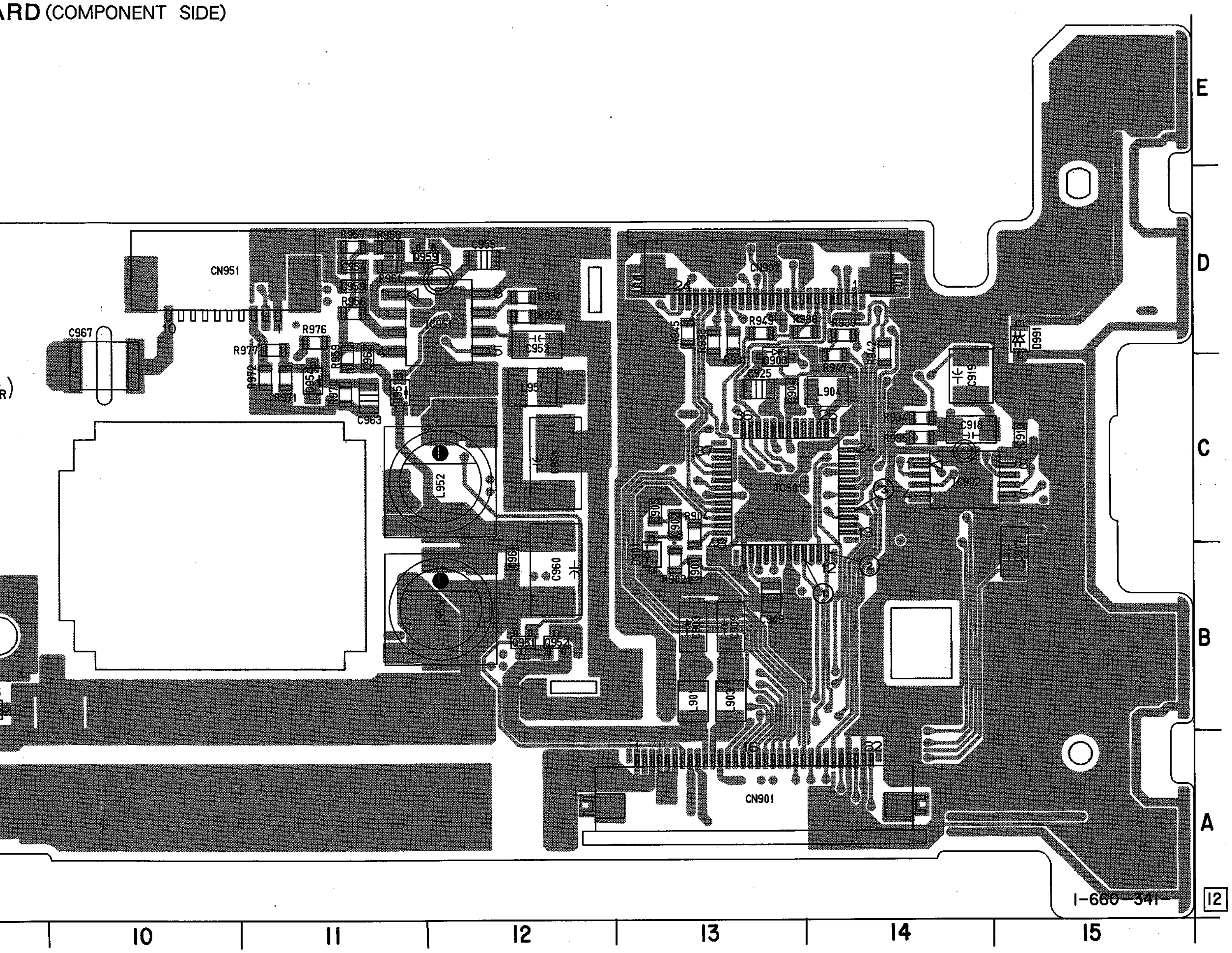
V41/TRV81)
not)

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

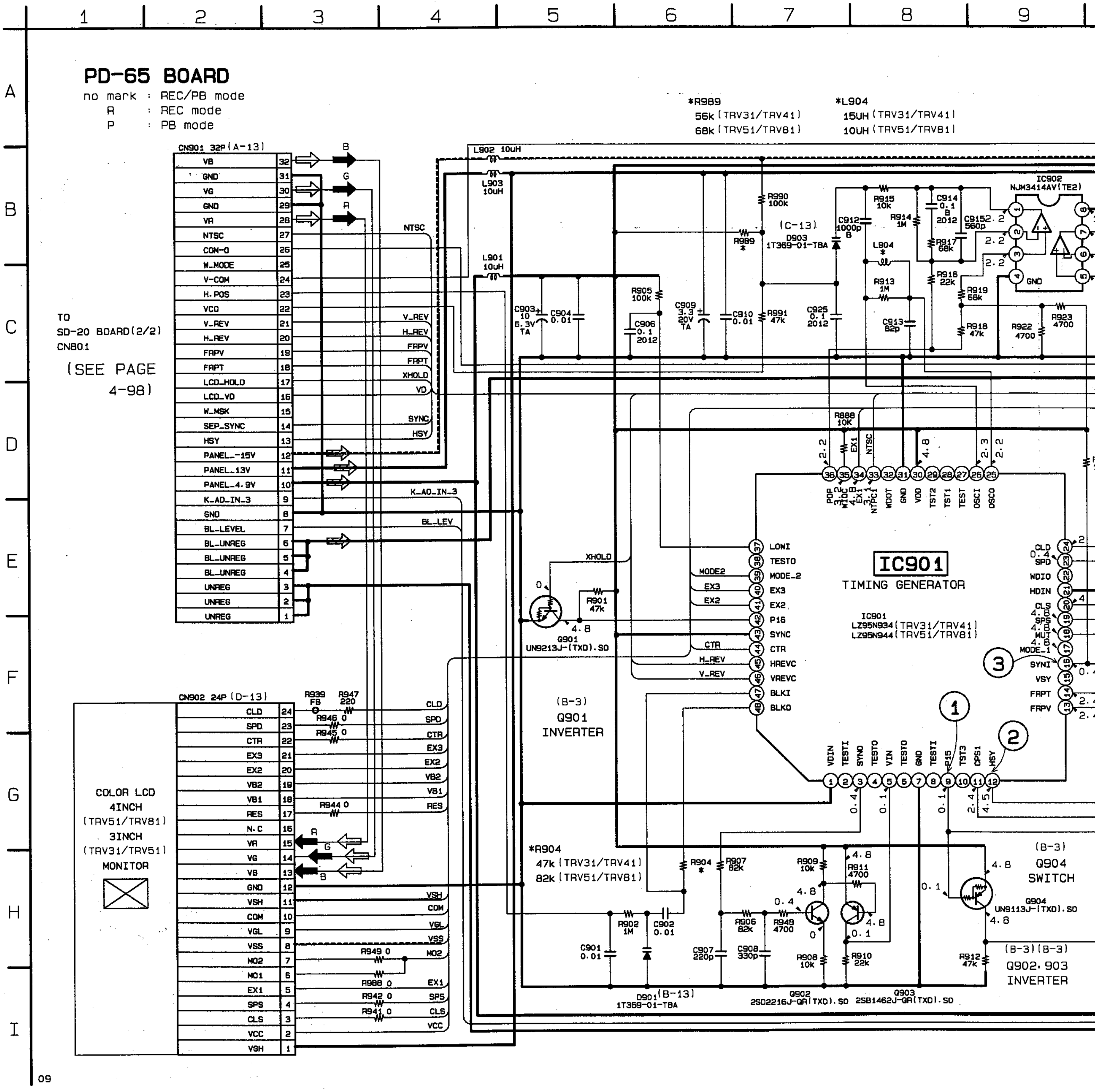
ARD (COMPONENT SIDE)



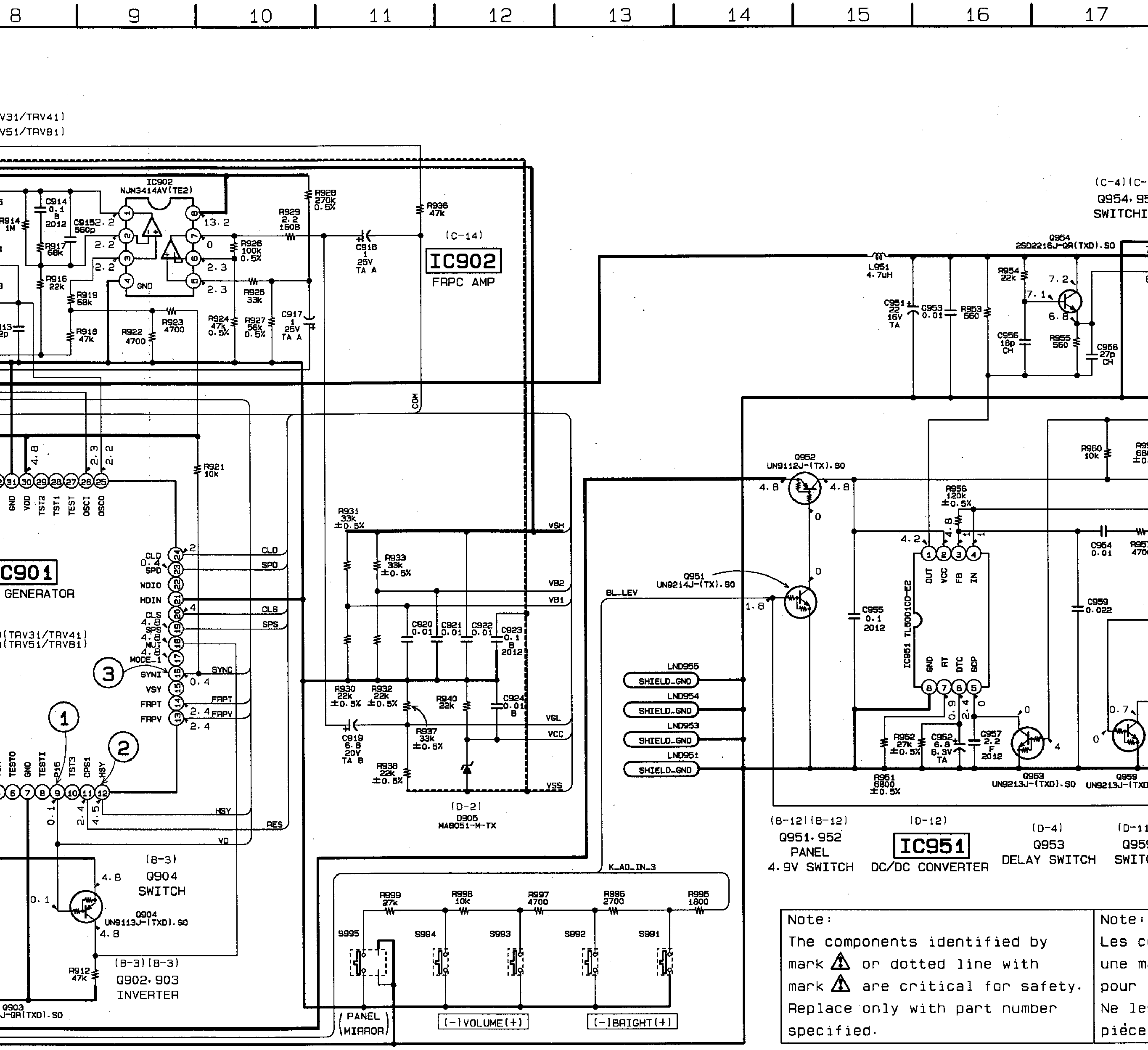
CN951
C967
10
R976
R977
R972
R971
R957
R958
D959
C965
C954
C955
R956
R961
IC951
R951
R952
C952
R959
C962
C963
L951
L952
L953
C959
C960
C961
Q951
Q952
CN902
24
1
R925
R933
R949
R938
R939
R942
R947
C925
D905
L904
36
25
37
IC901
13
12
R934
R935
C918
C919
C916
D991
IC902
R904
R902
C949
L901
L903
CN901
32
1-660-341-
12
E
D
C
B
A
10
11
12
13
14
15

PD-65 (LCD DRIVE) SCHEMATIC DIAGRAM

— Ref No. PD-65 BOARD: 4,000 series —



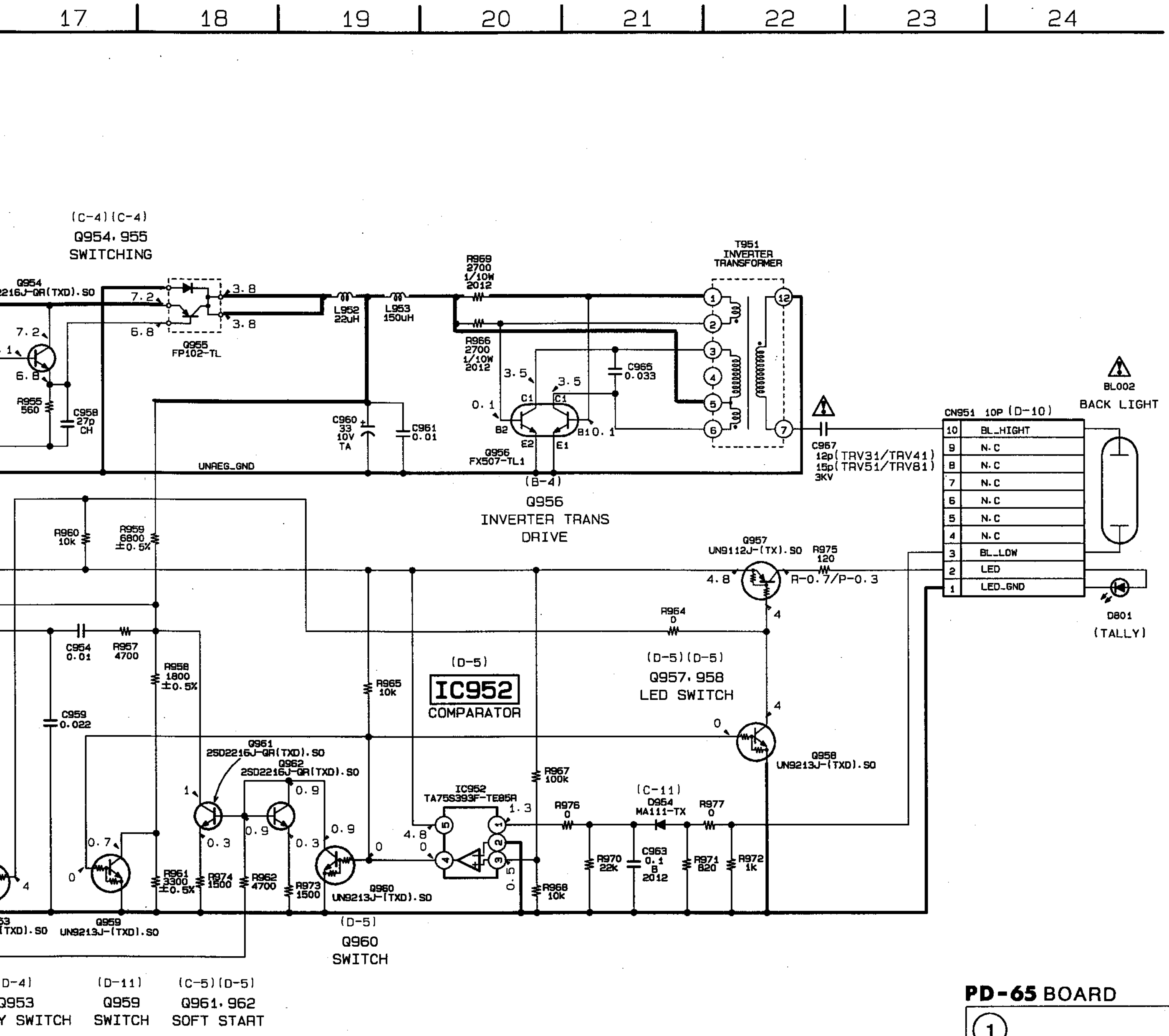
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
H
I
PD-65 BOARD
no mark : REC/PB mode
R : REC mode
P : PB mode
*R989
56k (TRV31/TRV41)
68k (TRV51/TRV81)
*L904
15uH (TRV31/TRV41)
10uH (TRV51/TRV81)
CN901 32P (A-13)
VB
GND
VG
GND
VR
NTSC
COM-O
W_MODE
V-COM
H.POS
VCO
V_REV
H_REV
FRPV
FRPT
LCD_HOLD
LCD_VD
W_MSK
SEP_SYNC
HSY
PANEL_-15V
PANEL_13V
PANEL_4.9V
K_AD_IN_3
GND
BL_LEVEL
BL_UNREG
BL_UNREG
BL_UNREG
UNREG
UNREG
UNREG
TO
SD-20 BOARD (2/2)
CN801
(SEE PAGE
4-98)
L902 10uH
L903 10uH
L901 10uH
R990 100k
R989 *
(C-13)
D903 1T369-01-T8A
C912 1000p B
R915 10k
R914 1M
C914 0.1 B 2012
C915 560p
R917 68k
R916 22k
L904 *
R913 1M
C913 82p
R919 68k
R918 47k
R922 4700
R923 4700
IC902
NJM3414AV (TE2)
GND
R905 100k
C903 10 6.3V TA
C904 0.01
C906 0.1 2012
C909 3.3 20V TA
C910 0.01
R991 47k
C925 0.1 2012
R888 10K
IC901
TIMING GENERATOR
IC901
LZ95N934 (TRV31/TRV41)
LZ95N944 (TRV51/TRV81)
POP
WIDE
EX1
NTPC1
WDOT
GND
VDD
TST2
TST1
TEST
OSCI
OSCO
LONI
TESTO
MODE_2
EX3
EX2
P16
SYNC
CTR
HREVC
VREVC
BLKI
BLKO
CLD
SPD
WDIO
HDIN
CLS
SPS
MUT
MODE_1
SYNI
VSY
FRPT
FRPV
VDIN
TESTI
SYNO
TESTO
VIN
TESTO
GND
TESTI
P15
TST3
CPS1
HSY
①
②
③
XHOLD
MODE2
EX3
EX2
CTR
H_REV
V_REV
K_AD_IN_3
BL_LEV
NTSC
V_REV
H_REV
FRPV
FRPT
XHOLD
VD
SYNC
HSY
R901 47k
Q901 UN9213J-(TXD).SO
(B-3)
Q901
INVERTER
CN902 24P (D-13)
R939 FB
R947 220
R946 0
R945 0
R944 0
CLD
SPD
CTR
EX3
EX2
VB2
VB1
RES
N.C
VR
VG
VB
GND
VSH
COM
VGL
VSS
MO2
MO1
EX1
SPS
CLS
VCC
VGH
COLOR LCD
4INCH
(TRV51/TRV81)
3INCH
(TRV31/TRV51)
MONITOR
R949 0
R988 0
R942 0
R941 0
*R904
47k (TRV31/TRV41)
82k (TRV51/TRV81)
R904 *
R907 82k
R902 1M
C902 0.01
C901 0.01
D901 (B-13) 1T369-01-T8A
R909 10k
R911 4700
R906 82k
R948 4700
C907 220p
C908 330p
R908 10k
R910 22k
Q902 2SD2216J-QR(TXD).SO
Q903 2SB1462J-QR(TXD).SO
(B-3)
Q904
SWITCH
Q904 UN9113J-(TXD).SO
R912 47k
(B-3) (B-3)
Q902, 903
INVERTER
09



8
9
10
11
12
13
14
15
16
17
V31/TRV41)
V51/TRV81)
IC902
NJM3414AV(TE2)
(C-14)
IC902
FRPC AMP
C914 0.1 B 2012
R914 1M
C915 560p
R917 68K
R916 22k
R919 68k
R918 47k
R922 4700
R923 4700
R924 47k 0.5%
R927 56k 0.5%
C917 1 25V TA A
R925 33k
R926 100k 0.5%
R928 270k 0.5%
R929 2.2 1608
C918 1 25V TA A
R936 47k
COM
R921 10k
GND VDD TST2 TST1 TEST OSCI OSCO
C901
GENERATOR
CLD SPD WDIO HDIN CLS SPS MUT MODE_1 SYNI VSY FRPT FRPV
(TRV31/TRV41)
(TRV51/TRV81)
CLD
SPD
CLS
SPS
SYNC
FRPT
FRPV
HSY
RES
VD
TESTO GND TESTI P15 TST3 CPS1 HSY
(B-3)
Q904
SWITCH
Q904
UN9113J-(TXD).SO
R912 47k
(B-3)(B-3)
Q902, 903
INVERTER
Q903
J-QR(TXD).SO
R931 33k ±0.5%
R933 33k ±0.5%
C920 0.01
C921 0.01
C922 0.01
C923 0.1 B 2012
R930 22k ±0.5%
R932 22k ±0.5%
R940 22k
C924 0.01 B
R937 33k ±0.5%
C919 6.8 20V TA B
R938 22k ±0.5%
(D-2)
D905
MA8051-M-TX
VSH
VB2
VB1
VGL
VCC
VSS
BL_LEV
K_AO_IN_3
R999 27k
R998 10k
R997 4700
R996 2700
R995 1800
S995
S994
S993
S992
S991
PANEL MIRROR
(-)VOLUME(+)
(-)BRIGHT(+)
LND955
SHIELD_GND
LND954
SHIELD_GND
LND953
SHIELD_GND
LND951
SHIELD_GND
Q952
UN9112J-(TX).SO
Q951
UN9214J-(TX).SO
(B-12)(B-12)
Q951, 952
PANEL
4.9V SWITCH
L951 4.7uH
C951 22 16V TA
C953 0.01
R953 560
(C-4)(C-
Q954, 95
SWITCHI
Q954
2SD2216J-QR(TXD).SO
R954 22k
C956 18p CH
R955 560
C958 27p CH
R960 10k
R956 120k ±0.5%
C955 0.1 2012
IC951 TL5001CD-E2
OUT VCC FB IN
GND RT DTC SCP
C954 0.01
R957 4700
C959 0.022
R952 27k ±0.5%
C952 6.8 6.3V TA
C957 2.2 F 2012
R951 6800 ±0.5%
(D-12)
IC951
DC/DC CONVERTER
Q953
UN9213J-(TXD).SO
(D-4)
Q953
DELAY SWITCH
Q959
UN9213J-(TXD
(D-11
Q959
SWITC
1
2
3

Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Note:
Les c
une m
pour
Ne le
pièce

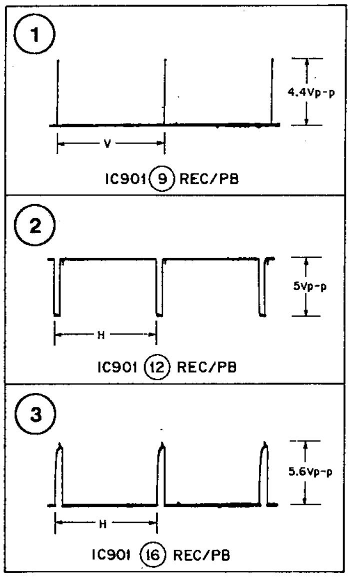

17
18
19
20
21
22
23
24
(C-4)(C-4)
Q954, 955
SWITCHING
Q954
2SD2216J-QR(TXD).SO
Q955
FP102-TL
L952
22uH
L953
150uH
R955
560
C958
27p
CH
C960
33
10V
TA
C961
0.01
UNREG_GND
R969
2700
1/10W
2012
R966
2700
1/10W
2012
C965
0.033
Q956
FX507-TL1
(B-4)
Q956
INVERTER TRANS
DRIVE
T951
INVERTER
TRANSFORMER
C967
12p(TRV31/TRV41)
15p(TRV51/TRV81)
3KV
CN951 10P (D-10)
10 BL_HIGHT
9 N.C
8 N.C
7 N.C
6 N.C
5 N.C
4 N.C
3 BL_LOW
2 LED
1 LED_GND
BL002
BACK LIGHT
D801
(TALLY)
Q957
UN9112J-(TX).SO
R975
120
R-0.7/P-0.3
R964
0
R960
10k
R959
6800
±0.5%
C954
0.01
R957
4700
R958
1800
±0.5%
C959
0.022
R965
10k
(D-5)
IC952
COMPARATOR
(D-5)(D-5)
Q957, 958
LED SWITCH
Q958
UN9213J-(TXD).SO
Q961
2SD2216J-QR(TXD).SO
Q962
2SD2216J-QR(TXD).SO
R967
100k
IC952
TA75S393F-TE85R
(C-11)
D954
MA111-TX
R976
0
R977
0
R970
22k
C963
0.1
B
2012
R971
820
R972
1k
R968
10k
R961
3300
±0.5%
R974
1500
R962
4700
R973
1500
Q960
UN9213J-(TXD).SO
Q959
UN9213J-(TXD).SO
(D-5)
Q960
SWITCH
(D-4)
Q953
SWITCH
(D-11)
Q959
SWITCH
(C-5)(D-5)
Q961, 962
SOFT START

	Note:
py	Les composants identifiés par
n	une marque ⚠ sont critiques
afety.	pour la sécurité.
per	Ne les remplacer que par une
	pièce portant le numéro spécifié.

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

PD-65 BOARD

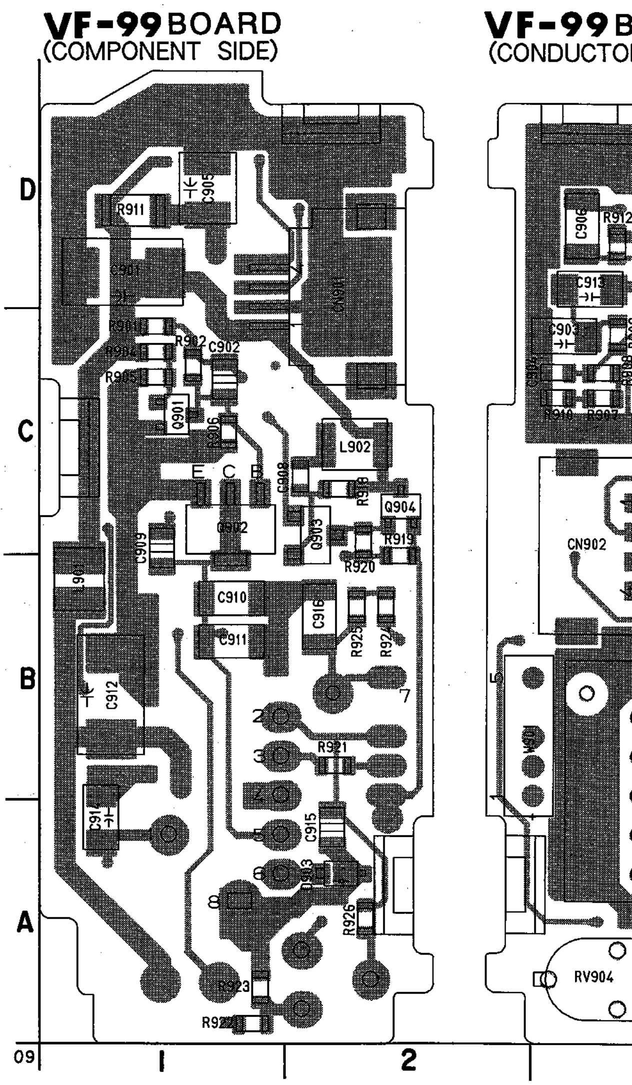


VF-99 (B/W EVF) PRINTED WIRING BOARD

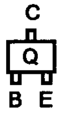
— Ref No. VF-99 BOARD: 7,000 series —

VF-99 BOARD

C901	D-1
C902	C-1
C903	C-3
C904	C-3
C905	D-1
C906	D-2
C907	D-4
C908	C-2
C909	C-1
C910	B-1
C911	B-1
C912	B-1
C913	D-2
C914	A-1
C915	A-2
C916	B-2
CN901	D-2
CN902	C-3
D901	D-2
D903	A-2
IC901	D-2
L901	B-1
L902	C-2
L903	A-3
Q901	C-1
Q902	C-1
Q903	C-2
Q904	C-2
R901	C-1
R902	C-1
R903	D-2
R904	C-1
R905	C-1
R906	C-1
R907	C-3
R908	C-3
R909	C-3
R910	C-3
R911	D-1
R912	D-2
R913	C-3
R914	C-4
R915	B-4
R916	D-4
R917	D-4
R918	C-2
R919	C-2
R920	C-2
R921	B-2
R922	A-1
R923	A-1
R924	B-2
R925	B-2
R926	A-2
R927	C-3
R928	C-3
R929	D-4
RV903	A-4
RV904	A-3
T901	B-3
TH901	C-3
W901	B-2


VF-99 BOARD
(COMPONENT SIDE)
VF-99 B
(CONDUCTO
D
C
B
A
09
1
2
R911
C905
C901
CN901
R901
R902
C902
R904
R905
Q901
R906
L902
E C B
C908
R918
Q904
Q902
Q903
R919
C909
R920
C910
C916
C911
R925
R924
C912
7
2
3
R921
4
5
C915
6
D903
8
R926
R923
R922
C906
R912
C913
C903
R910
R907
CN902
5
W901
RV904

- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor

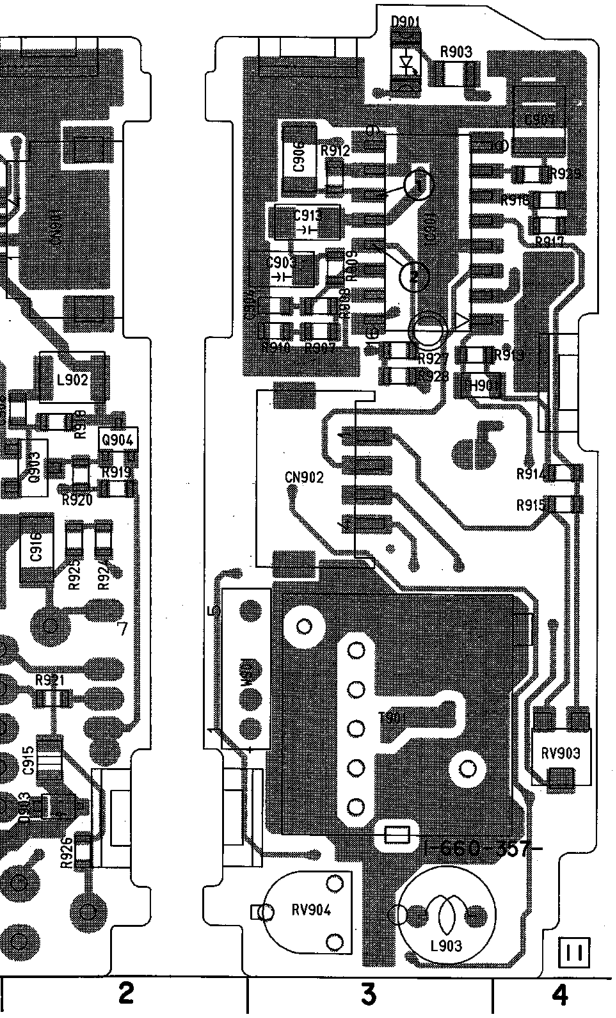


There are few cases that the part isn't mounted in this model is printed on this diagram.

ING BOARD

—

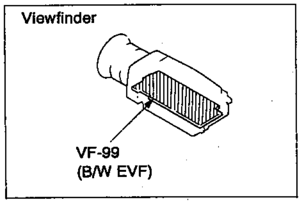
VF-99 BOARD
(CONDUCTOR SIDE)


D901
R903
C907
C906
R912
R939
R916
C913
R917
C903
R909
R908
C901
R910
R907
R927
R928
R913
H901
L902
R918
Q904
Q903
R919
R920
CN902
R914
R915
C916
R925
R924
7
5
R921
CN901
1
T901
C915
RV903
R926
1-660-357-
RV904
L903
11
2
3
4

3.

rint board. However, the patterns

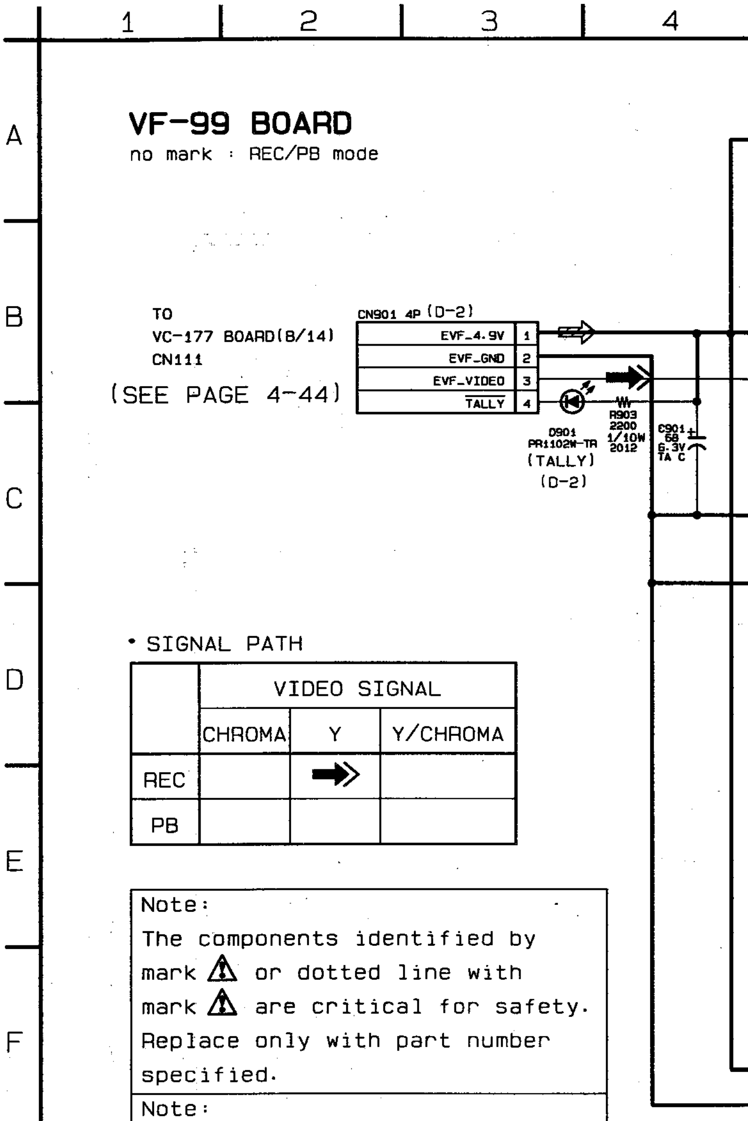
been included in the diagram.


Viewfinder
VF-99
(B/W EVF)

he part isn't mounted in this model is

VF-99 (B/W EVF) SCHEMATIC DIAGRAM

— Ref No. VF-99 BOARD: 7,000 series —

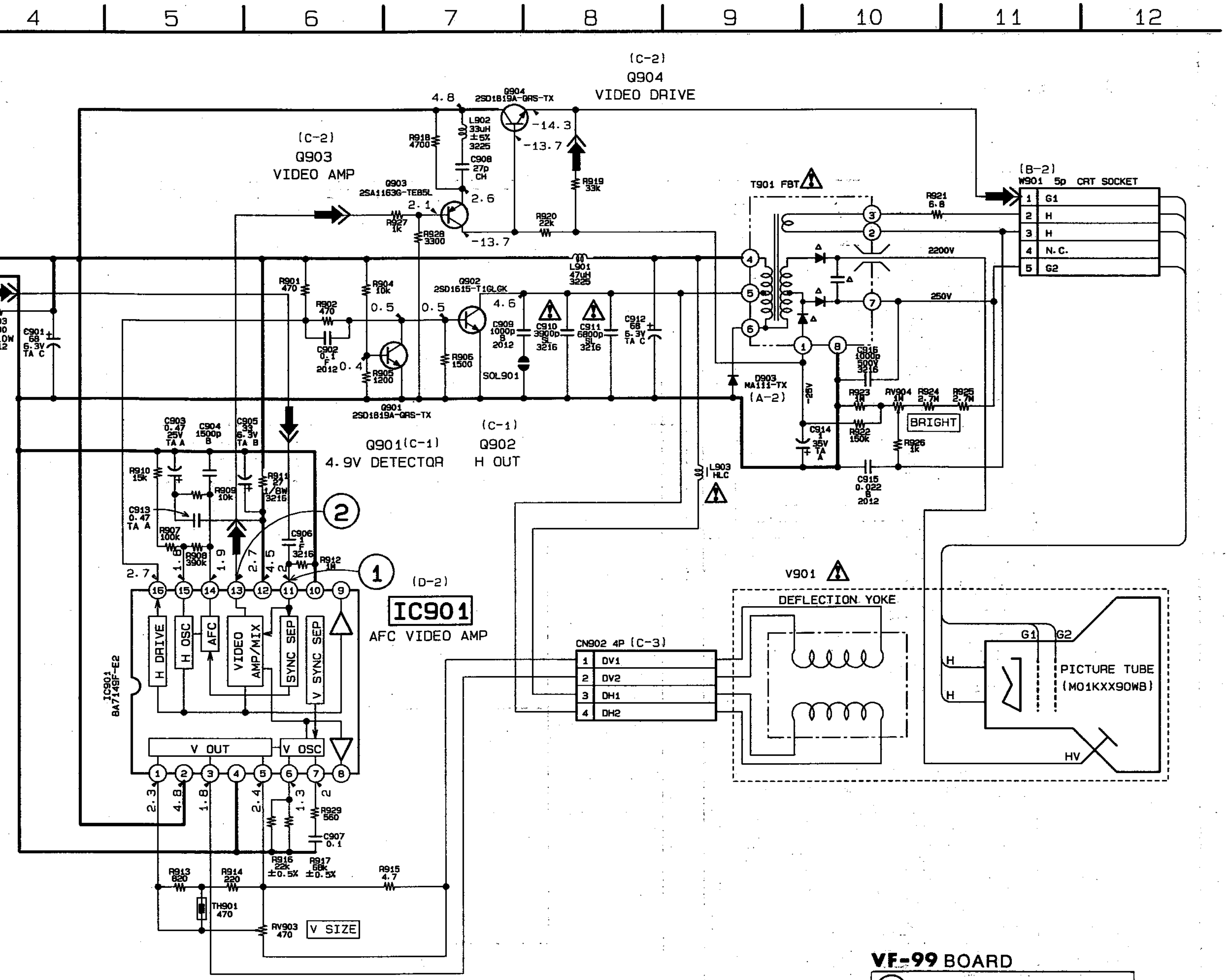

1
2
3
4
A
B
C
D
E
F
G
VF-99 BOARD
no mark : REC/PB mode
TO
VC-177 BOARD(B/14)
CN111
(SEE PAGE 4-44)
CN901 4P (D-2)
EVF_4.9V 1
EVF_GND 2
EVF_VIDEO 3
TALLY 4
D901
PR1102W-TR
(TALLY)
(D-2)
R903
2200
1/10W
2012
C901
68
6.3V
TA C
09

• SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡》	
PB			

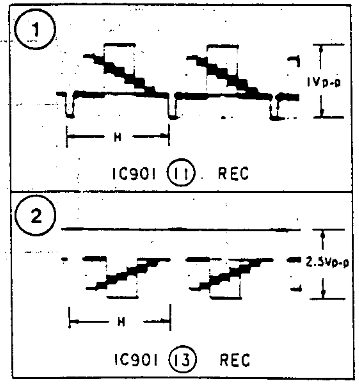
Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.



4
5
6
7
8
9
10
11
12
(C-2)
Q904
VIDEO DRIVE
Q904
2SD1819A-QRS-TX
4.8
-14.3
-13.7
L902
33uH
±5%
3225
R918
4700
C908
27p
CH
R919
33k
(C-2)
Q903
VIDEO AMP
Q903
2SA1163G-TE85L
2.1
2.6
R927
1k
R928
3300
-13.7
R920
22k
T901 FBT
R921
6.8
(B-2)
W901 5p CRT SOCKET
1 G1
2 H
3 H
4 N.C.
5 G2
2200V
250V
L901
47uH
3225
R901
470
R904
10k
Q902
2SD1615-T1GLGK
R902
470
0.5
0.5
4.6
C909
1000p
B
2012
C910
3900p
SL
3216
C911
6800p
SL
3216
C912
68
6.3V
TA C
C902
0.1
F
2012
0.4
R905
1200
R906
1500
SOL901
Q901
2SD1819A-QRS-TX
C901
68
6.3V
TA C
D903
MA111-TX
(A-2)
-26V
C916
1000p
500V
3216
R923
1M
RV904
1M
R924
2.7M
R925
2.7M
BRIGHT
R922
150k
C914
1
35V
TA
A
R926
1k
C915
0.022
B
2012
C903
0.47
25V
TA A
C904
1500p
B
C905
33
6.3V
TA B
Q901(C-1)
4.9V DETECTOR
(C-1)
Q902
H OUT
L903
HLC
R910
15k
R911
27
1/8W
3216
R909
10k
C913
0.47
TA A
R907
100k
R908
390k
C906
1
F
3216
R912
1M
2.7
1.8
1.9
2.7
4.5
①
②
(D-2)
IC901
AFC VIDEO AMP
IC901
BA7149F-E2
H DRIVE
H OSC
AFC
VIDEO AMP/MIX
SYNC SEP
V SYNC SEP
V OUT
V OSC
2.3
4.8
1.8
2.4
1.3
2
R929
560
C907
0.1
R913
820
R914
220
R916
22k
±0.5%
R917
68k
±0.5%
R915
4.7
TH901
470
RV903
470
V SIZE
V901
DEFLECTION YOKE
CN902 4P (C-3)
1 DV1
2 DV2
3 DH1
4 DH2
G1
G2
H
H
PICTURE TUBE
(M01KXX90WB)
HV

VF-99 BOARD

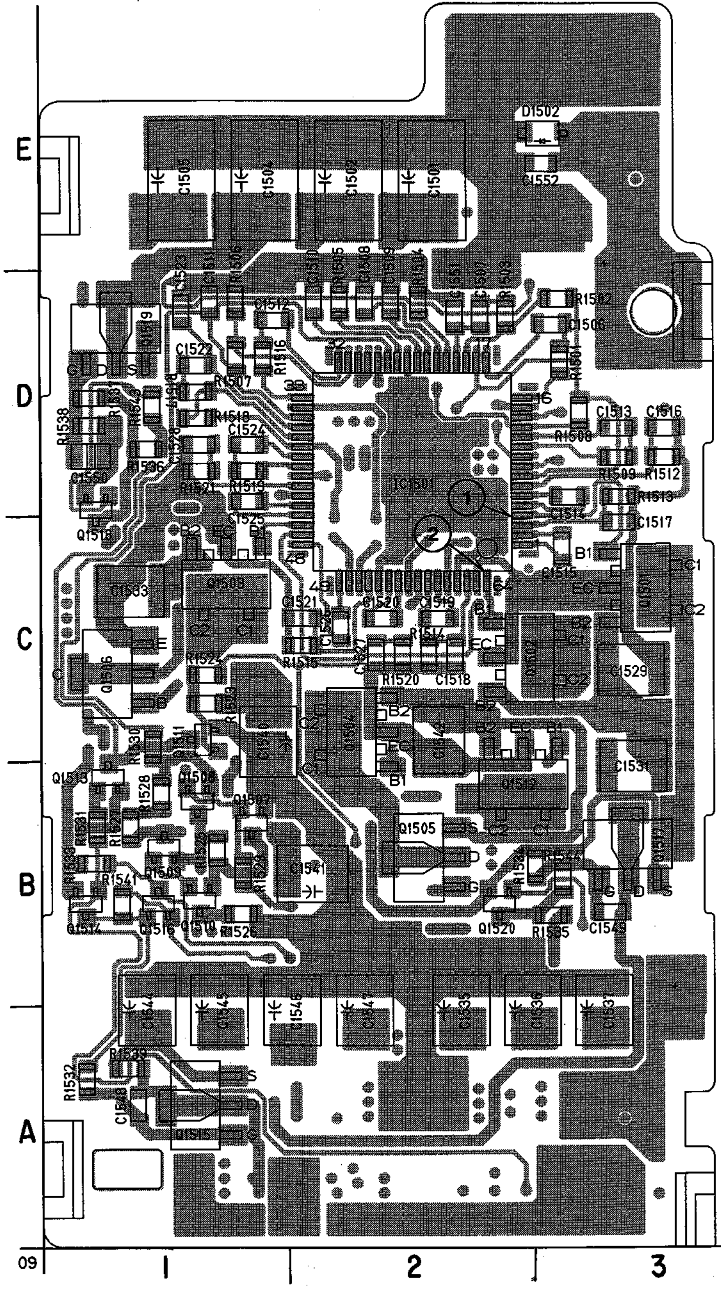


①
1Vp-p
H
IC901 ⑪ REC
②
2.5Vp-p
H
IC901 ⑬ REC

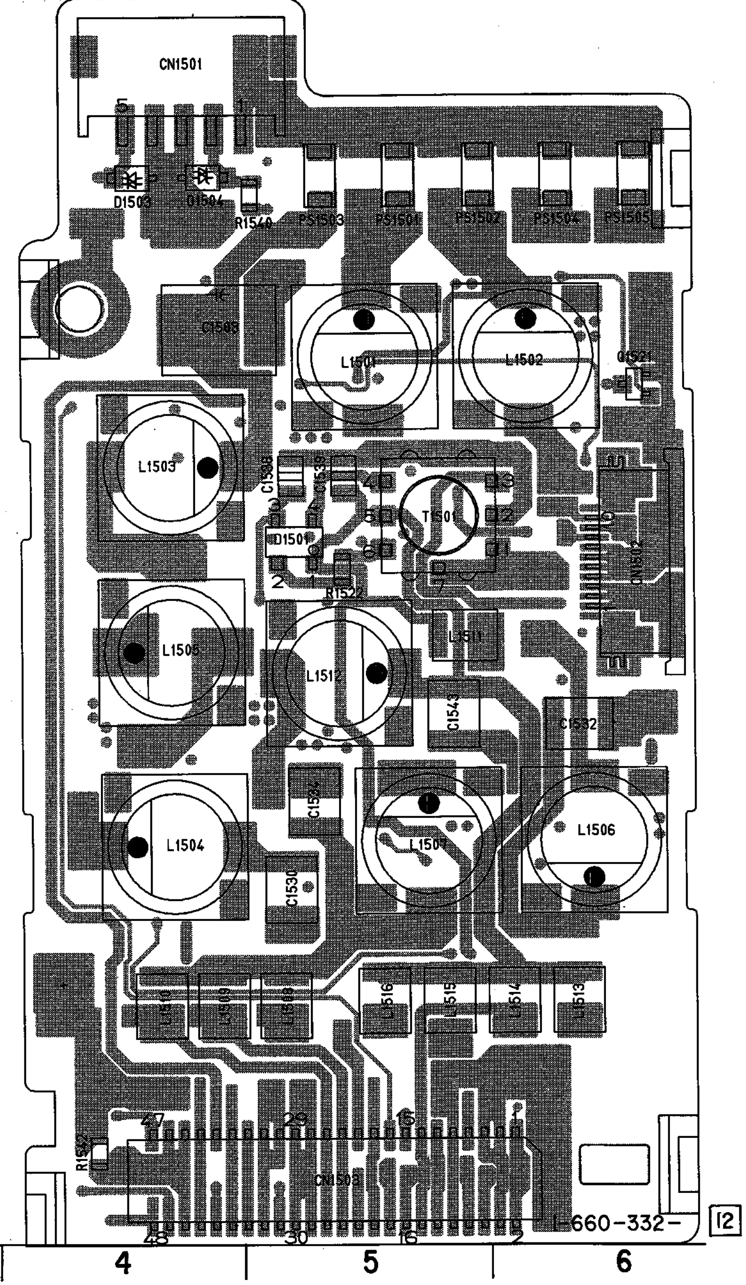
DD-85 (POWER SUPPLY) PRINTED WIRING BOARD

— Ref No. DD-85 BOARD: 20,000 series —

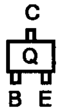
DD-85 BOARD (CONDUCTOR SIDE)


E
D
C
B
A
09
1
2
3
D1502
C1552
C1509
C1510
C1501
C1502
C1503
C1508
C1511
C1506
C1505
C1507
R1502
C1504
R1503
R1504
C1512
C1522
R1507
R1516
R1538
R1536
R1521
R1518
C1524
R1519
C1525
C1560
Q1515
Q1503
Q1508
IC1501
C1513
C1516
R1508
R1509
R1512
R1513
C1514
C1517
C1515
B1
EC
Q1501
C1
C2
C1521
C1520
C1519
R1514
R1515
R1520
C1518
Q1502
C1529
Q1506
R1524
R1530
Q1513
R1528
Q1509
Q1507
Q1504
Q1510
Q1512
C1531
Q1505
C1541
R1541
R1526
Q1514
C1516
Q1519
Q1520
R1535
C1549
C1544
C1545
R1546
C1547
C1535
C1536
C1537
R1532
R1539
Q1516
33
48
49
64
16
1
2

DD-85 BOARD (COMPONENT SIDE)


4
5
6
CN1501
5
1
D1503
D1504
R1540
PS1503
PS1504
PS1502
PS1501
PS1505
C1508
L1501
L1502
C1521
L1503
C1538
D1501
T1501
R1522
CN1502
L1505
L1512
L1511
C1543
C1532
C1534
L1504
C1530
L1507
L1506
L1510
L1509
L1508
L1516
L1515
L1514
L1513
R1532
CN1503
47
29
15
48
30
16
2
1-660-332-
12

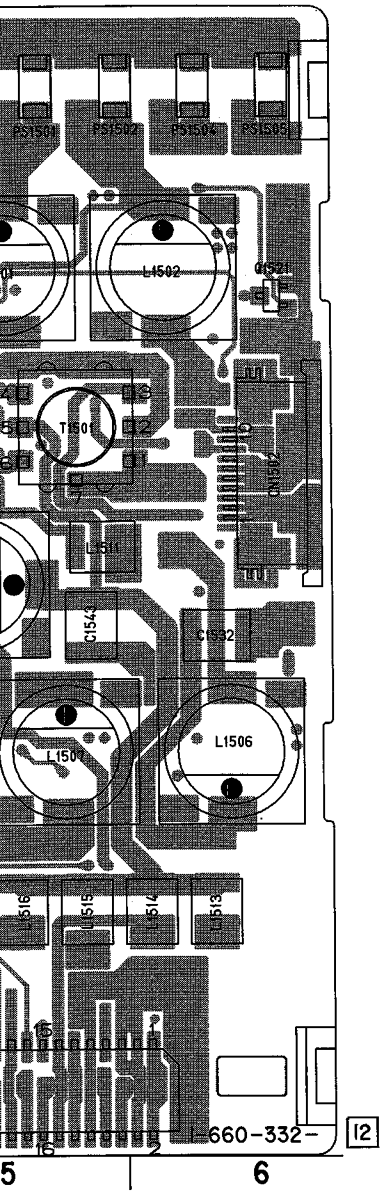
- **For printed wiring boards.**
- This board is a four-layer print board. However, the patterns of layers 2 and 3 have not been included in the diagram.
- Chip transistor



There are few cases that the part isn't mounted in this model is printed on this diagram.

FP-383 (CONNECTOR) PRINTED WIRING BOARD

NENT SIDE)

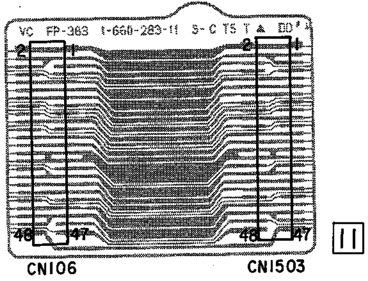


PS1501
PS1502
PS1504
PS1505
L1502
Q1521
T1501
CN1502
L1511
C1543
C1532
L1506
L1505
L1516
L1515
L1514
L1513
15
16
1
2
1-660-332-
12
5
6

DD-85 BOARD

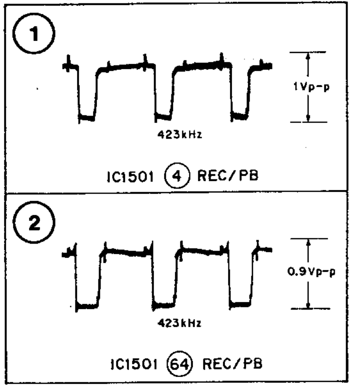
C1501	E-2
C1502	E-2
C1503	D-4
C1504	C-2
C1504	E-1
C1505	E-1
C1506	D-3
C1507	D-2
C1508	D-2
C1509	D-2
C1510	D-2
C1511	D-1
C1512	D-1
C1513	D-3
C1514	D-3
C1515	C-3
C1519	C-2
C1520	C-2
C1522	D-1
C1523	D-1
C1524	D-1
C1525	D-1
C1526	C-2
C1529	C-3
C1530	B-5
C1531	B-3
C1532	C-6
C1533	C-1
C1534	B-5
C1535	A-2
C1536	A-2
C1537	A-3
C1538	D-5
C1539	D-5
C1540	C-1
C1541	B-2
C1542	C-2
C1543	C-5
C1544	A-1
C1545	A-1
C1546	A-1
C1547	A-2
C1548	A-1
C1550	D-1
C1551	D-2
CN1501	E-4
CN1502	C-6
CN1503	A-5
D1501	C-5
D1502	E-3
D1503	E-4
D1504	E-4
IC1501	D-2
L1501	D-5
L1502	D-6
L1503	D-4
L1504	B-4
L1505	C-4
L1506	B-6
L1507	B-5
L1508	B-5
L1509	B-4
L1510	B-4
L1511	C-5
L1512	C-5
L1513	B-6
L1514	B-6
L1515	B-5
L1516	B-5
PS1501	E-5
PS1502	E-5
PS1503	E-5
PS1504	E-6
PS1505	E-6
Q1501	C-3
Q1502	C-2
Q1503	C-1
Q1504	
Q1505	B-2
Q1506	C-1
Q1507	B-1
Q1508	B-1
Q1509	B-1
Q1510	B-1
Q1511	C-1
Q1512	B-2
Q1513	B-1
Q1514	B-1
Q1515	A-1
Q1518	C-1
Q1519	D-1
Q1521	D-6
R1501	D-3
R1503	D-2
R1504	D-2
R1505	D-2
R1506	D-1
R1507	D-1
R1508	D-3
R1509	D-3
R1512	D-3
R1513	D-3
R1514	C-2
R1515	C-2
R1516	D-1
R1517	D-1
R1519	D-1
R1520	C-2
R1521	D-1
R1522	C-5
R1523	C-1
R1524	C-1
R1525	B-1
R1526	B-1
R1527	B-1
R1528	B-1
R1529	B-1
R1530	C-1
R1531	B-1
R1532	A-1
R1536	D-1
R1537	D-1
R1538	D-1
R1540	E-5
R1541	B-1
R1542	A-4
T1501	C-5

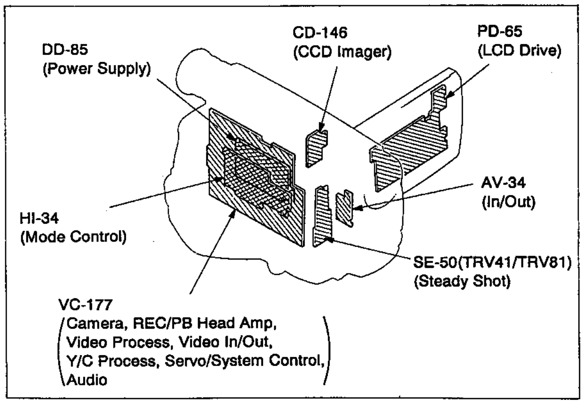
FP-383 BOARD



VC FP-383 1-660-283-11 S-C TS T
2
1
2
1
48
47
48
47
CN106
CN1503
11

DD-85 BOARD

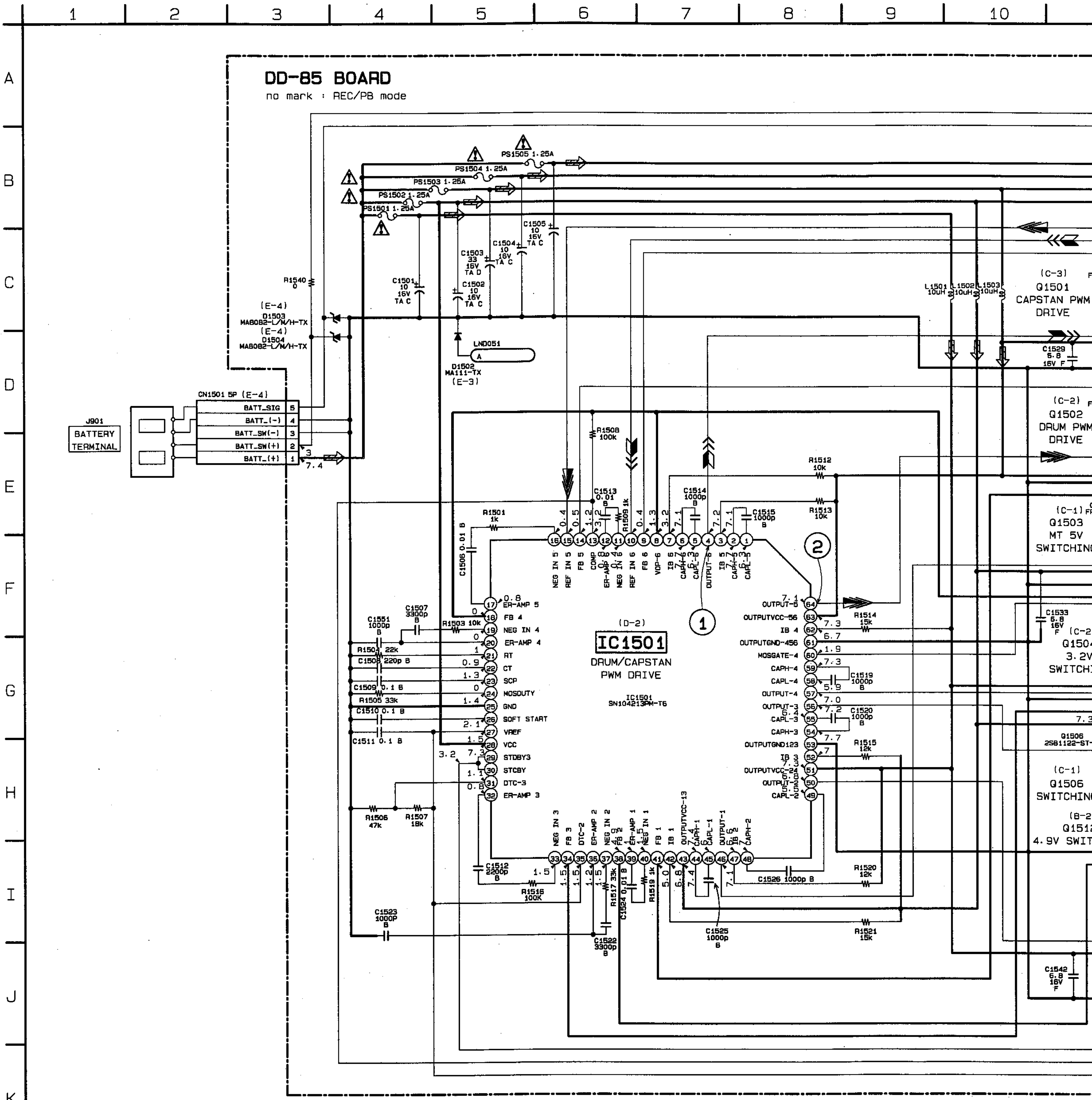




DD-85
(Power Supply)
CD-146
(CCD Imager)
PD-65
(LCD Drive)
AV-34
(In/Out)
HI-34
(Mode Control)
SE-50(TRV41/TRV81)
(Steady Shot)
VC-177
(Camera, REC/PB Head Amp,
Video Process, Video In/Out,
Y/C Process, Servo/System Control,
Audio)

DD-85 (POWER SUPPLY), FP-383 (CONNECTOR) SCHEMATIC DIAGRAMS

— Ref No. DD-85 BOARD: 20,000 series —

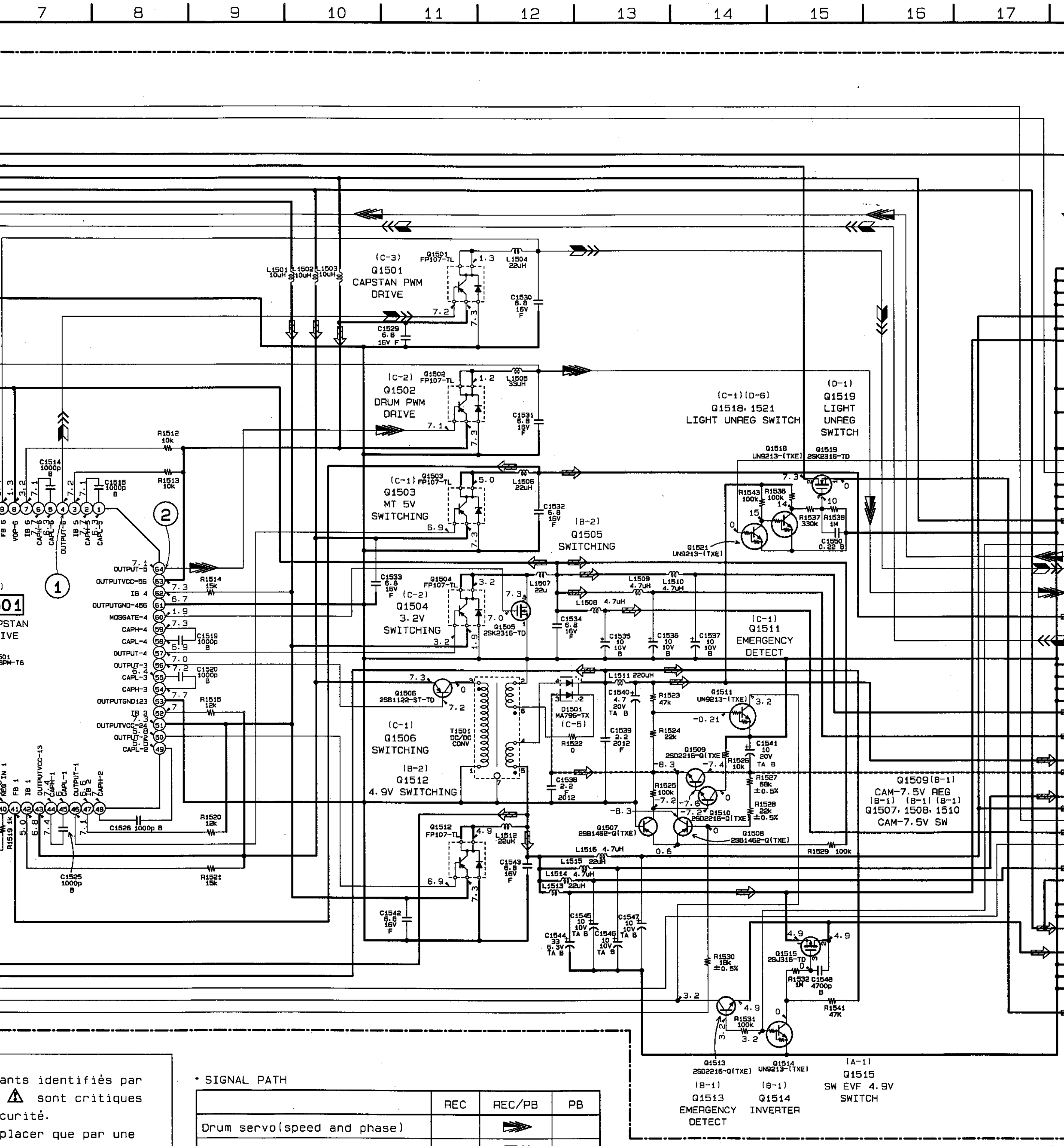

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
H
I
J
K
L
DD-85 BOARD
no mark : REC/PB mode
PS1505 1.25A
PS1504 1.25A
PS1503 1.25A
PS1502 1.25A
PS1501 1.25A
C1505 10 16V TA C
C1504 10 16V TA C
C1503 33 16V TA D
C1502 10 16V TA C
C1501 10 16V TA C
R1540 0
(E-4) D1503 MA8082-L/M/H-TX
(E-4) D1504 MA8082-L/M/H-TX
LND051
D1502 MA111-TX (E-3)
CN1501 5P (E-4)
BATT_SIG
BATT_(-)
BATT_SW(-)
BATT_SW(+)
BATT_(+)
J901
BATTERY TERMINAL
7.4
R1508 100k
R1501 1k
C1506 0.01 B
C1513 0.01 B
R1509 1k
C1514 1000p B
C1515 1000p B
R1512 10k
R1513 10k
L1501 10uH
L1502 10uH
L1503 10uH
(C-3) Q1501 CAPSTAN PWM DRIVE
C1529 6.8 16V F
(C-2) Q1502 DRUM PWM DRIVE
(C-1) Q1503 MT 5V SWITCHIN
C1533 6.8 16V F
(C-2 Q150 3.2V SWITCH
Q1506 2SB1122-ST-
(C-1) Q1506 SWITCHIN
(B-2 Q151 4.9V SWIT
C1542 6.8 16V F
(D-2)
IC1501
DRUM/CAPSTAN PWM DRIVE
IC1501 SN104213PM-T6
NEG IN 5
REF IN 5
FB 5
COMP
ER-AMP 6
NEG IN 6
REF IN 6
FB 6
VDP-6
IB 6
CAPH-6
CAPL-6
OUTPUT-6
IB 5
CAPH-5
CAPL-5
ER-AMP 5
FB 4
NEG IN 4
ER-AMP 4
RT
CT
SCP
MOSDUTY
GND
SOFT START
VREF
VCC
STDBY3
STCBY
DTC-3
ER-AMP 3
OUTPUT-5
OUTPUTVCC-56
IB 4
OUTPUTGND-456
MOSGATE-4
CAPH-4
CAPL-4
OUTPUT-4
OUTPUT-3
CAPL-3
CAPH-3
OUTPUTGND123
IB 3
OUTPUTVCC-24
OUTPUT-2
CAPL-2
NEG IN 3
FB 3
DTC-2
ER-AMP 2
NEG IN 2
FB 2
ER-AMP 1
NEG IN 1
FB 1
IB 1
OUTPUTVCC-13
CAPH-1
CAPL-1
OUTPUT-1
IB 2
CAPH-2
C1551 1000p B
C1507 3300p B
R1503 10k
R1504 22k
C1508 220p B
C1509 0.1 B
R1505 33k
C1510 0.1 B
C1511 0.1 B
R1506 47k
R1507 18k
C1512 2200p B
R1516 100K
R1517 33k
C1524 0.01 B
R1519 1k
C1522 3300p B
C1523 1000P B
C1525 1000p B
C1526 1000p B
R1514 15k
C1519 1000p B
C1520 1000p B
R1515 12k
R1520 12k
R1521 15k
0.8
0
1
0.9
1.3
1.4
2.1
1.5
3.2
7.3
1.1
7.4
7.3
6.7
1.9
5.9
7.0
6.4
7.2
7.7
1.5
1.2
4.9
5.0
6.8
7.1
0.4
0.5
3.2
0.4
1.3
7.1
7.2

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiès par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numèro spécifiè.

• SIGNAL PATH

Drum servo(speed and phase)
Capstan servo(speed and phase

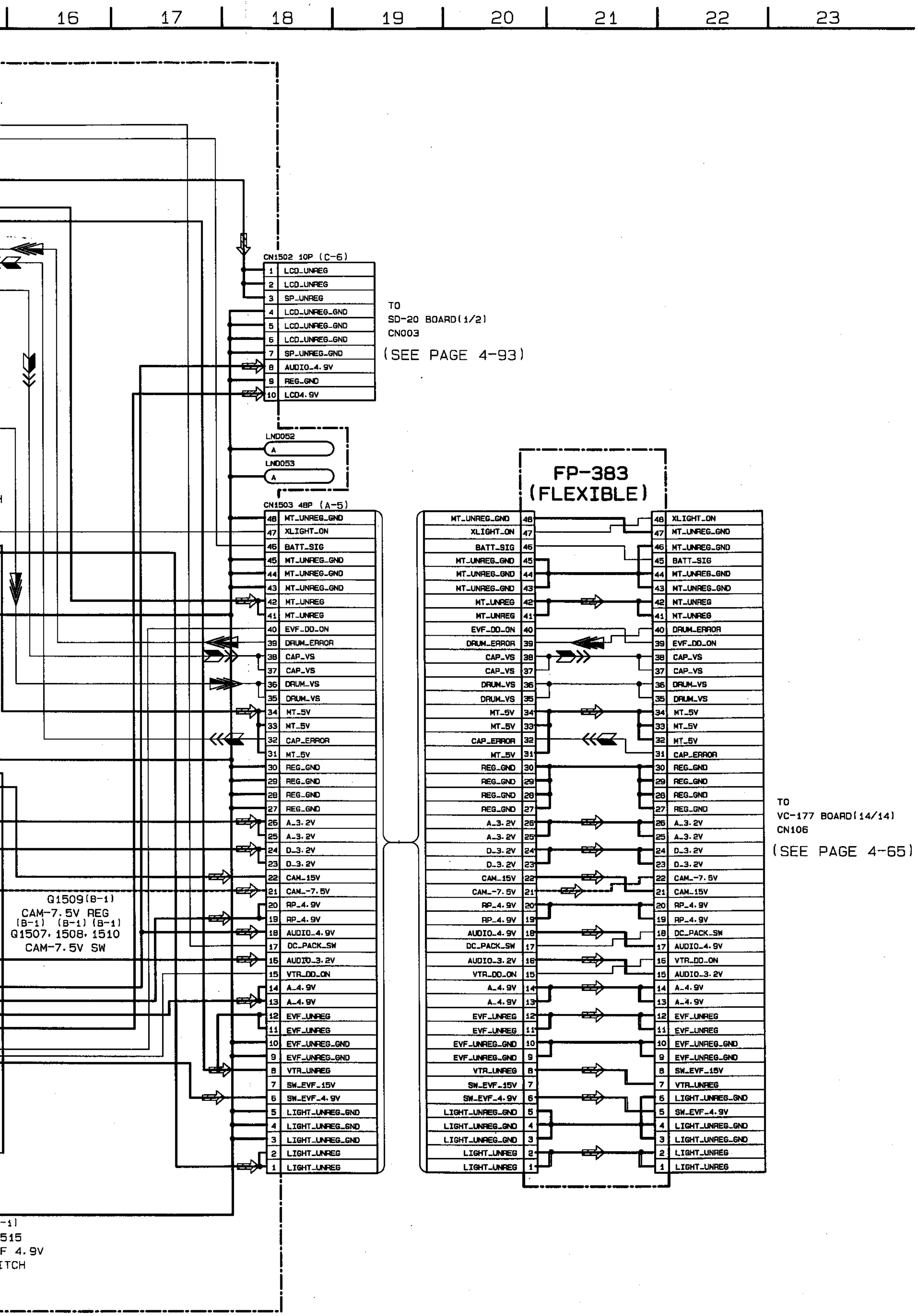
09


7
8
9
10
11
12
13
14
15
16
17
(C-3) Q1501 CAPSTAN PWM DRIVE
Q1501 FP107-TL
L1504 22uH
C1530 6.8 16V F
C1529 6.8 16V F
L1501 10uH
L1502 10uH
L1503 10uH
(C-2) Q1502 DRUM PWM DRIVE
Q1502 FP107-TL
L1505 33uH
C1531 6.8 16V F
(C-1) Q1503 MT 5V SWITCHING
Q1503 FP107-TL
L1506 22uH
C1532 6.8 16V F
(B-2) Q1505 SWITCHING
Q1504 FP107-TL
(C-2) Q1504 3.2V SWITCHING
C1533 6.8 16V F
L1507 22u
Q1505 2SK2316-TD
C1534 6.8 16V F
L1508 4.7uH
L1509 4.7uH
L1510 4.7uH
C1535 10 10V B
C1536 10 10V B
C1537 10 10V B
(C-1) Q1511 EMERGENCY DETECT
(C-1)(D-6) Q1518, 1521 LIGHT UNREG SWITCH
(D-1) Q1519 LIGHT UNREG SWITCH
Q1518 UN9213-(TXE)
Q1519 2SK2316-TD
R1543 100k
R1536 100k
R1537 330k
R1538 1M
C1550 0.22 B
Q1521 UN9213-(TXE)
Q1506 2SB1122-ST-TD
(C-1) Q1506 SWITCHING
(B-2) Q1512 4.9V SWITCHING
T1501 DC/DC CONV
L1511 220uH
C1540 4.7 20V TA B
R1523 47k
Q1511 UN9213-(TXE)
D1501 MA796-TX (C-5)
R1522 0
C1539 2.2 2012 F
R1524 22k
Q1509 2SD2216-Q(TXE)
R1526 10k
C1541 10 20V TA B
R1527 56k ±0.5%
R1528 22k ±0.5%
R1525 100k
C1538 2.2 2012
Q1510 2SD2216-Q(TXE)
Q1507 2SB1462-Q(TXE)
Q1508 2SB1462-Q(TXE)
Q1509(B-1) CAM-7.5V REG
(B-1) (B-1) (B-1) Q1507, 1508, 1510 CAM-7.5V SW
R1529 100k
Q1512 FP107-TL
L1512 22uH
C1543 6.8 16V F
L1516 4.7uH
L1515 22uH
L1514 4.7uH
L1513 22uH
C1542 6.8 16V F
C1544 33 6.3V TA B
C1545 10 10V TA B
C1546 10 10V TA B
C1547 10 10V TA B
R1530 18k ±0.5%
Q1515 2SJ316-TD
R1532 1M
C1548 4700p B
R1541 47K
R1531 100K
Q1513 2SD2216-Q(TXE)
Q1514 UN9213-(TXE)
(B-1) Q1513 EMERGENCY DETECT
(B-1) Q1514 INVERTER
(A-1) Q1515 SW EVF 4.9V SWITCH
01
PSTAN
IVE
OUTPUT-5
OUTPUTVCC-56
IB 4
OUTPUTGND-456
MOSGATE-4
CAPH-4
CAPL-4
OUTPUT-4
OUTPUT-3
CAPL-3
CAPH-3
OUTPUTGND123
IB 3
OUTPUTVCC-24
OUTPUT-2
CAPL-2
R1512 10k
R1513 10k
C1514 1000p B
C1515 1000p B
R1514 15k
C1519 1000p B
C1520 1000p B
R1515 12k
R1520 12k
R1521 15k
C1525 1000p B
C1526 1000p B
R1519 1k
FB 6
VOP-6
IB 6
CAPH-6
CAPL-6
OUTPUT-6
IB 5
CAPH-5
CAPL-5
REG IN 1
FB 1
IB 1
OUTPUTVCC-13
CAPH-1
CAPL-1
OUTPUT-1
IB 2
CAPH-2
①
②

ants identifiés par
⚠ sont critiques
curité.
placer que par une
ant le numéro spécifié.

• SIGNAL PATH

	REC	REC/PB	PB
Drum servo(speed and phase)		➤	
Capstan servo(speed and phase)		➤>>	


16
17
18
19
20
21
22
23
CN1502 10P (C-6)
1 LCD_UNREG
2 LCD_UNREG
3 SP_UNREG
4 LCD_UNREG_GND
5 LCD_UNREG_GND
6 LCD_UNREG_GND
7 SP_UNREG_GND
8 AUDIO_4.9V
9 REG_GND
10 LCD4.9V
TO
SD-20 BOARD(1/2)
CN003
(SEE PAGE 4-93)
LND052
A
LND053
A
CN1503 48P (A-5)
48 MT_UNREG_GND
47 XLIGHT_ON
46 BATT_SIG
45 MT_UNREG_GND
44 MT_UNREG_GND
43 MT_UNREG_GND
42 MT_UNREG
41 MT_UNREG
40 EVF_DD_ON
39 DRUM_ERROR
38 CAP_VS
37 CAP_VS
36 DRUM_VS
35 DRUM_VS
34 MT_5V
33 MT_5V
32 CAP_ERROR
31 MT_5V
30 REG_GND
29 REG_GND
28 REG_GND
27 REG_GND
26 A_3.2V
25 A_3.2V
24 D_3.2V
23 D_3.2V
22 CAM_15V
21 CAM_-7.5V
20 RP_4.9V
19 RP_4.9V
18 AUDIO_4.9V
17 DC_PACK_SW
16 AUDIO_3.2V
15 VTR_DD_ON
14 A_4.9V
13 A_4.9V
12 EVF_UNREG
11 EVF_UNREG
10 EVF_UNREG_GND
9 EVF_UNREG_GND
8 VTR_UNREG
7 SW_EVF_15V
6 SW_EVF_4.9V
5 LIGHT_UNREG_GND
4 LIGHT_UNREG_GND
3 LIGHT_UNREG_GND
2 LIGHT_UNREG
1 LIGHT_UNREG
Q1509(B-1)
CAM-7.5V REG
(B-1) (B-1) (B-1)
Q1507, 1508, 1510
CAM-7.5V SW
-1)
515
F 4.9V
ITCH
FP-383
(FLEXIBLE)
MT_UNREG_GND 48
XLIGHT_ON 47
BATT_SIG 46
MT_UNREG_GND 45
MT_UNREG_GND 44
MT_UNREG_GND 43
MT_UNREG 42
MT_UNREG 41
EVF_DD_ON 40
DRUM_ERROR 39
CAP_VS 38
CAP_VS 37
DRUM_VS 36
DRUM_VS 35
MT_5V 34
MT_5V 33
CAP_ERROR 32
MT_5V 31
REG_GND 30
REG_GND 29
REG_GND 28
REG_GND 27
A_3.2V 26
A_3.2V 25
D_3.2V 24
D_3.2V 23
CAM_15V 22
CAM_-7.5V 21
RP_4.9V 20
RP_4.9V 19
AUDIO_4.9V 18
DC_PACK_SW 17
AUDIO_3.2V 16
VTR_DD_ON 15
A_4.9V 14
A_4.9V 13
EVF_UNREG 12
EVF_UNREG 11
EVF_UNREG_GND 10
EVF_UNREG_GND 9
VTR_UNREG 8
SW_EVF_15V 7
SW_EVF_4.9V 6
LIGHT_UNREG_GND 5
LIGHT_UNREG_GND 4
LIGHT_UNREG_GND 3
LIGHT_UNREG 2
LIGHT_UNREG 1
48 XLIGHT_ON
47 MT_UNREG_GND
46 MT_UNREG_GND
45 BATT_SIG
44 MT_UNREG_GND
43 MT_UNREG_GND
42 MT_UNREG
41 MT_UNREG
40 DRUM_ERROR
39 EVF_DD_ON
38 CAP_VS
37 CAP_VS
36 DRUM_VS
35 DRUM_VS
34 MT_5V
33 MT_5V
32 MT_5V
31 CAP_ERROR
30 REG_GND
29 REG_GND
28 REG_GND
27 REG_GND
26 A_3.2V
25 A_3.2V
24 D_3.2V
23 D_3.2V
22 CAM_-7.5V
21 CAM_15V
20 RP_4.9V
19 RP_4.9V
18 DC_PACK_SW
17 AUDIO_4.9V
16 VTR_DD_ON
15 AUDIO_3.2V
14 A_4.9V
13 A_4.9V
12 EVF_UNREG
11 EVF_UNREG
10 EVF_UNREG_GND
9 EVF_UNREG_GND
8 SW_EVF_15V
7 VTR_UNREG
6 LIGHT_UNREG_GND
5 SW_EVF_4.9V
4 LIGHT_UNREG_GND
3 LIGHT_UNREG_GND
2 LIGHT_UNREG
1 LIGHT_UNREG
TO
VC-177 BOARD(14/14)
CN106
(SEE PAGE 4-65)

POWER SUPPLY, CONNECTOR

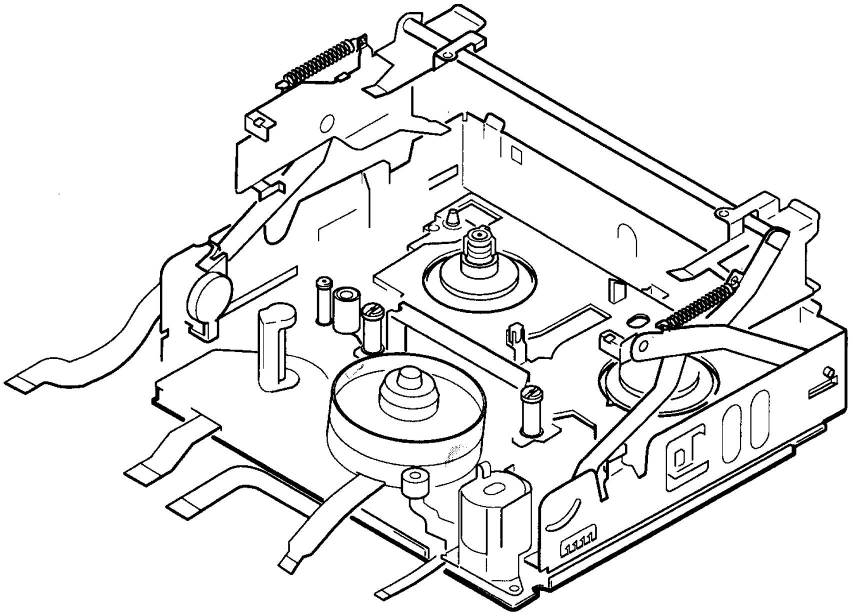
DD-85, FP-383

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

Use this mechanical adjustment manual Ⅶ together with the service manual of the respective models.



8 MECHANISM DECK

SONY®

MICROFILM

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For the mode selector operation, schematic diagram and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.
To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.
The mechanisms are adjusted while set in the USE mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the USE mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to USE mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

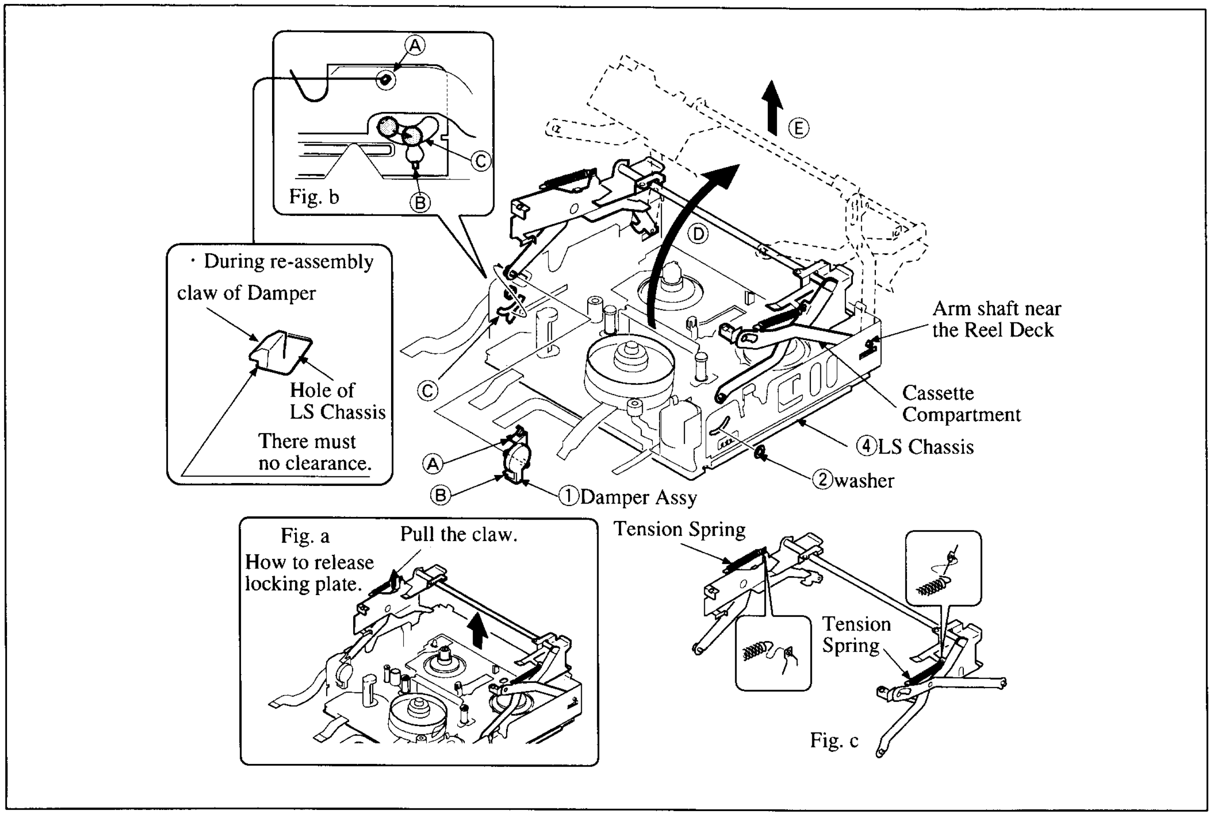

Ⓐ
Ⓒ
Fig. b
Ⓑ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Ⓔ
Ⓓ
Ⓒ
Ⓐ
Ⓑ
①Damper Assy
Arm shaft near
the Reel Deck
Cassette
Compartment
④LS Chassis
②washer
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

> Example of establishing the TEST mode: model CCD-TR420E/TR440E.
> Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.
> Select page: 7, address: 01, set data: 01 and press the PAUSE button.
> After tape loading or other desired operations of mechanism are completed, be sure to perform the following:
> Select page: F, address: 01, set data :00 and press the PAUSE button.
> Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

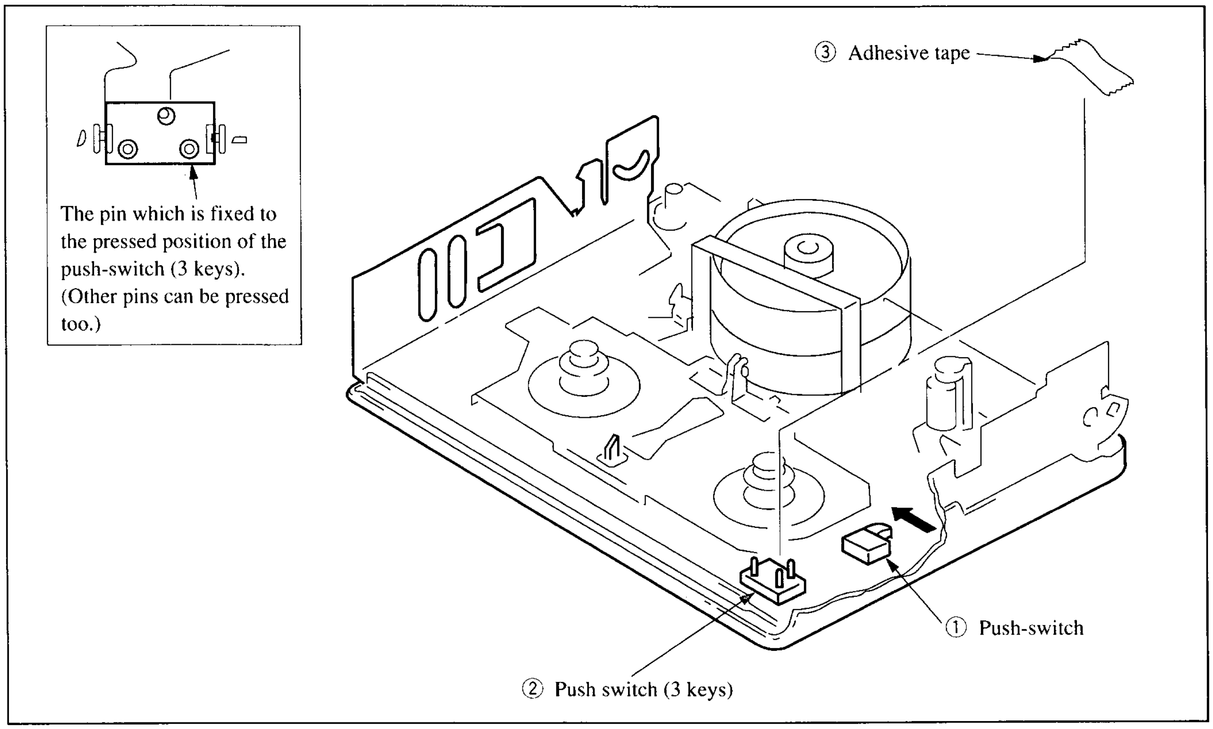

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

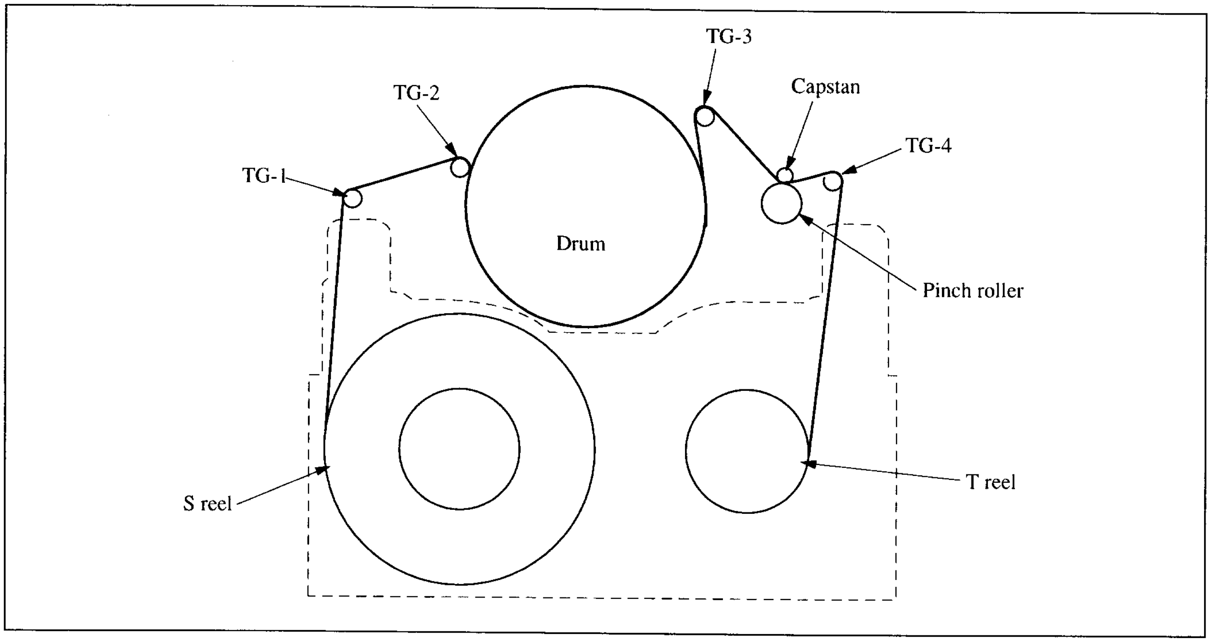


Fig. 3

2-3. Periodic Check Items

	Maintenance and Inspection Points	Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD RVS } Torque Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

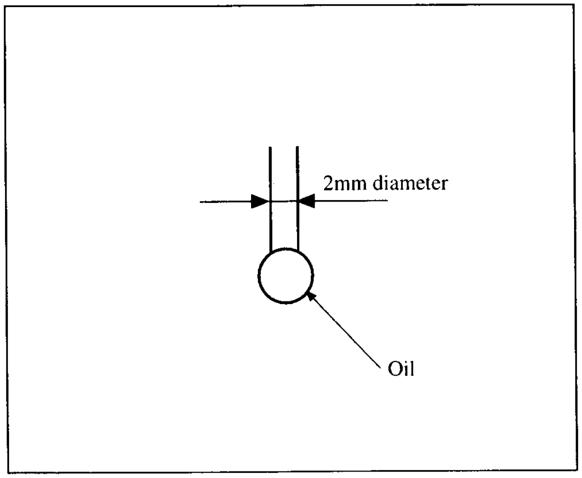


Fig. 4

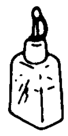
2-4. Service Tool List

Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	——	
J-2	Cleaning piece	2-034-697-00	——	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		——	
J-4	Head demagnetizer	Commercially available	——	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	——	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	——	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	——	
J-10	Remote commander for adjustment	J-6082-053-B	——	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	——	
J-12	FLOIL Grease SG-941	7-662-001-39	——	
J-13	FLOIL Grease SG-055G	7-651-000-09	——	

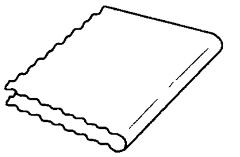
Other equipment

- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

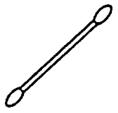
J-1



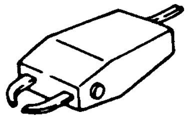
J-2



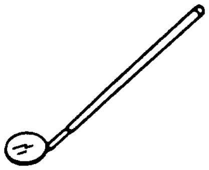
J-3



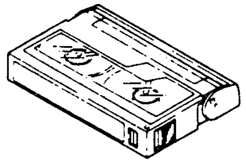
J-4



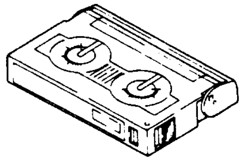
J-5



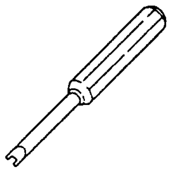
J-6



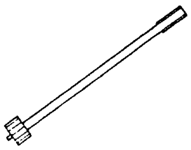
J-7



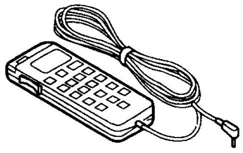
J-8



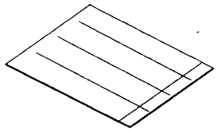
J-9



J-10

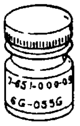


J-11



J-12

J-13



3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

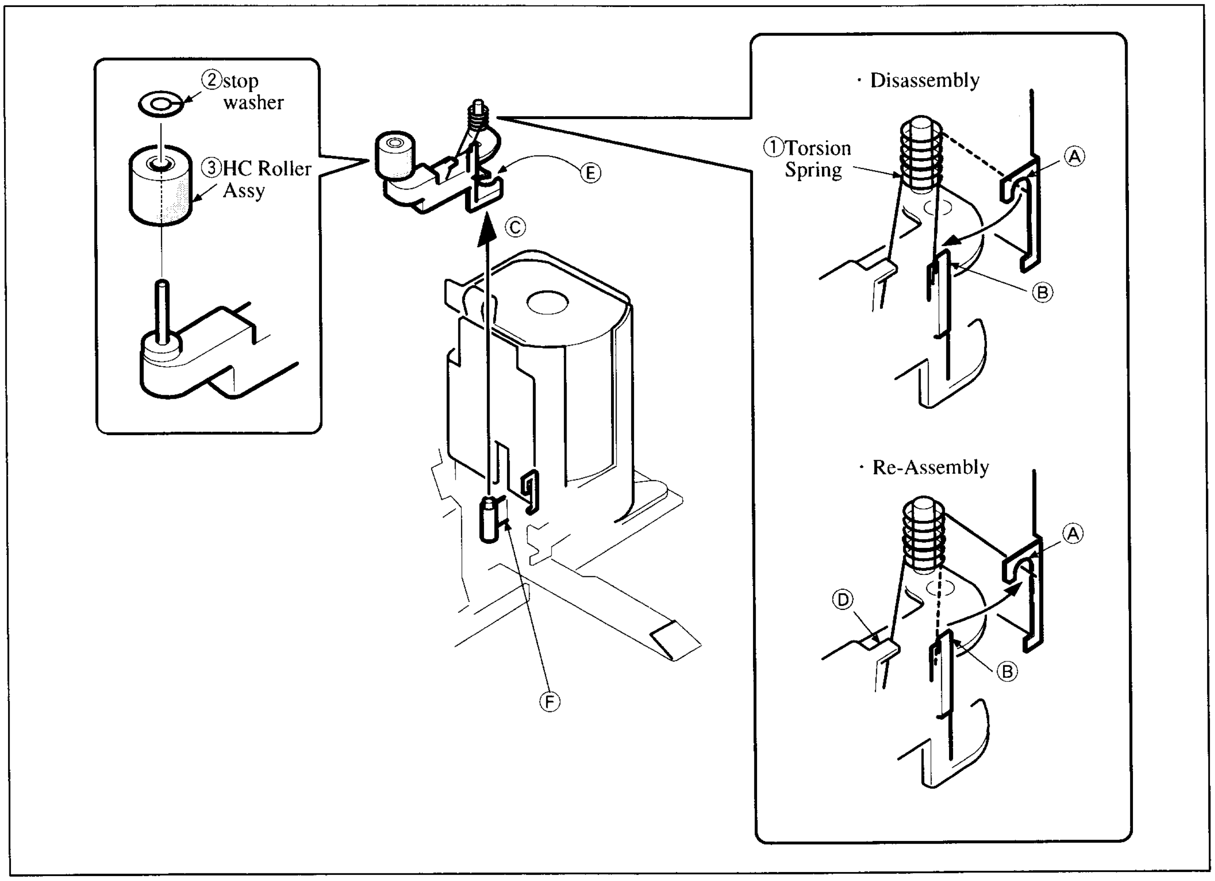

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓐ
Ⓓ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to USE mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

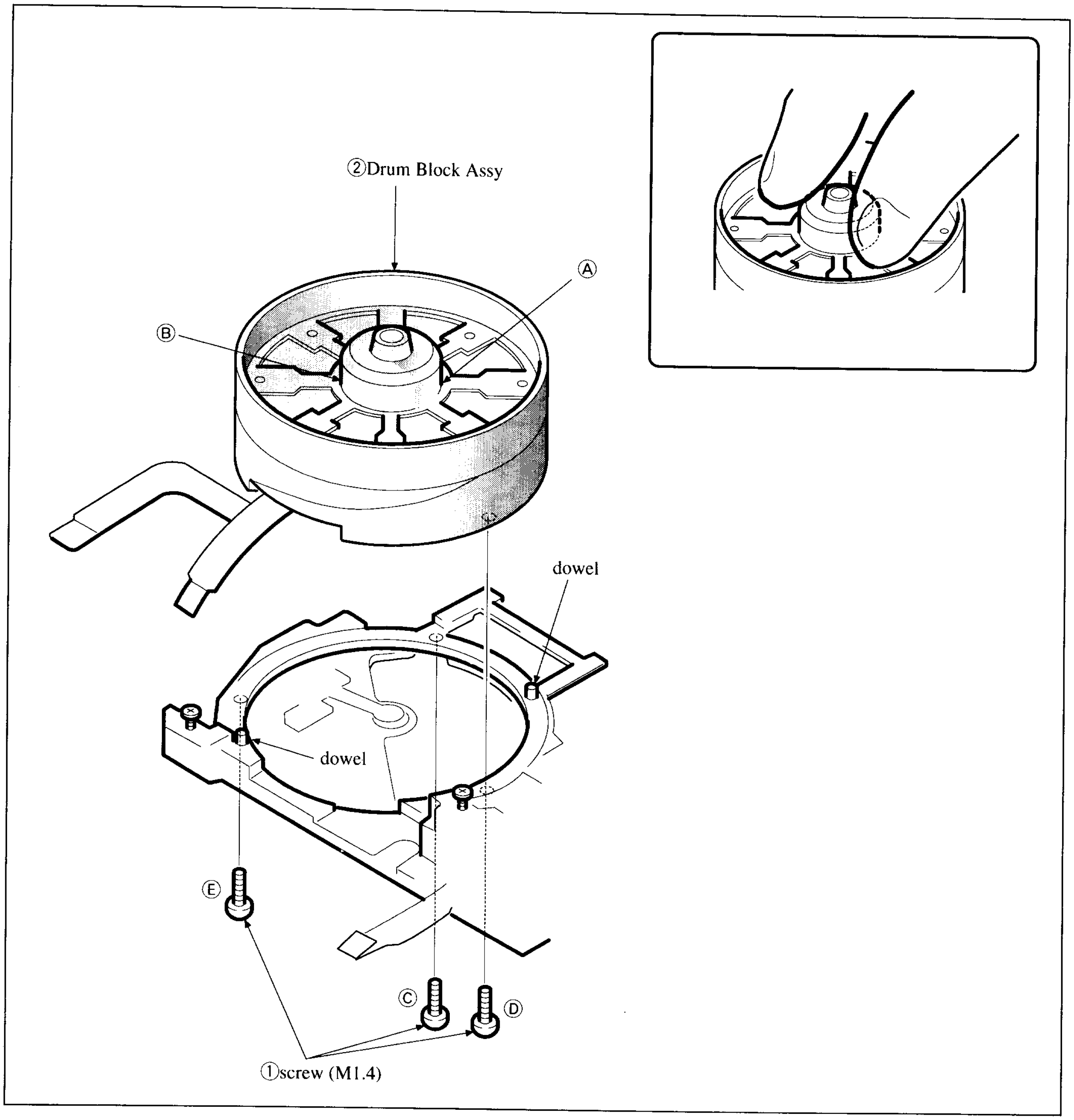


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

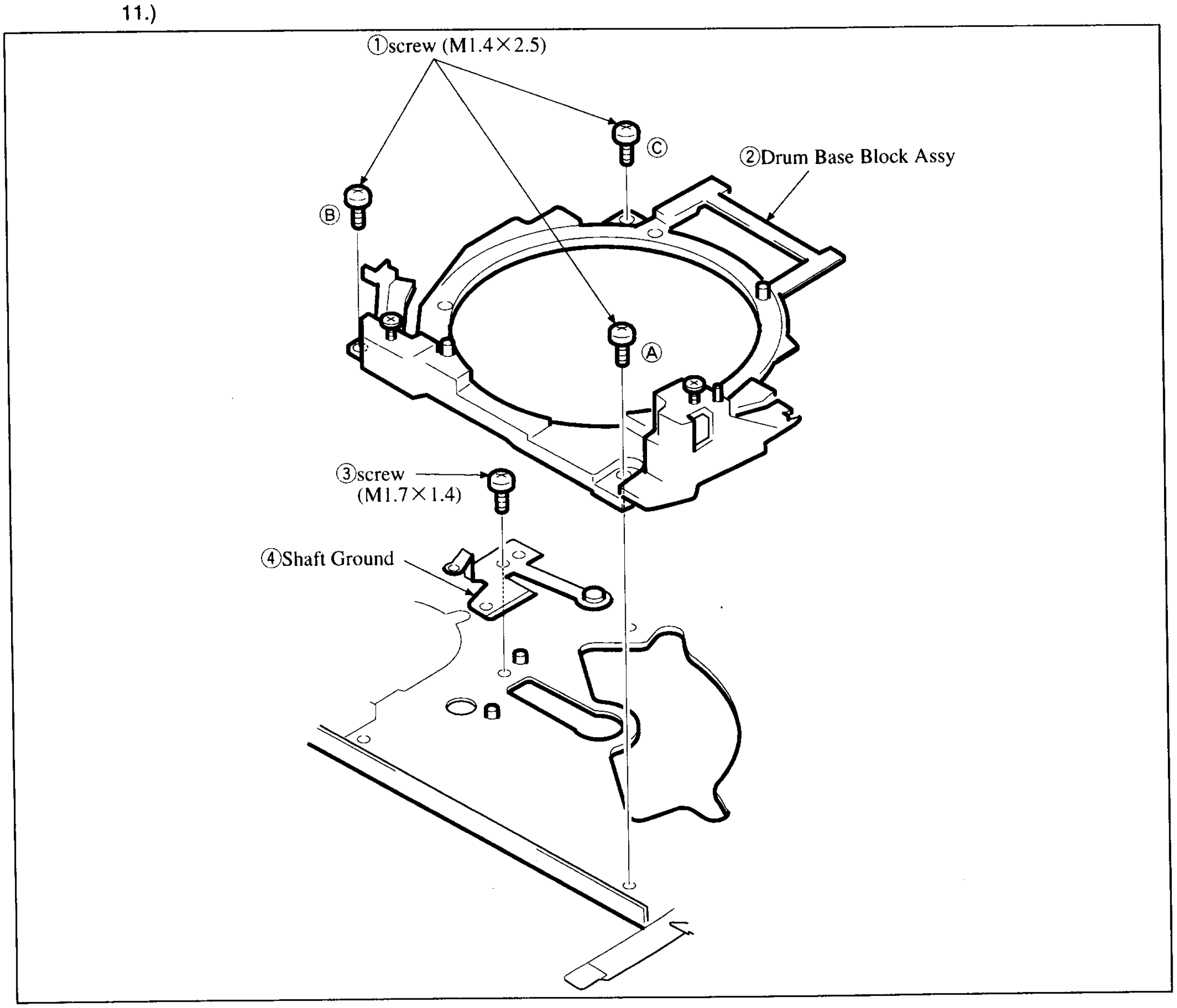


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
(Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.

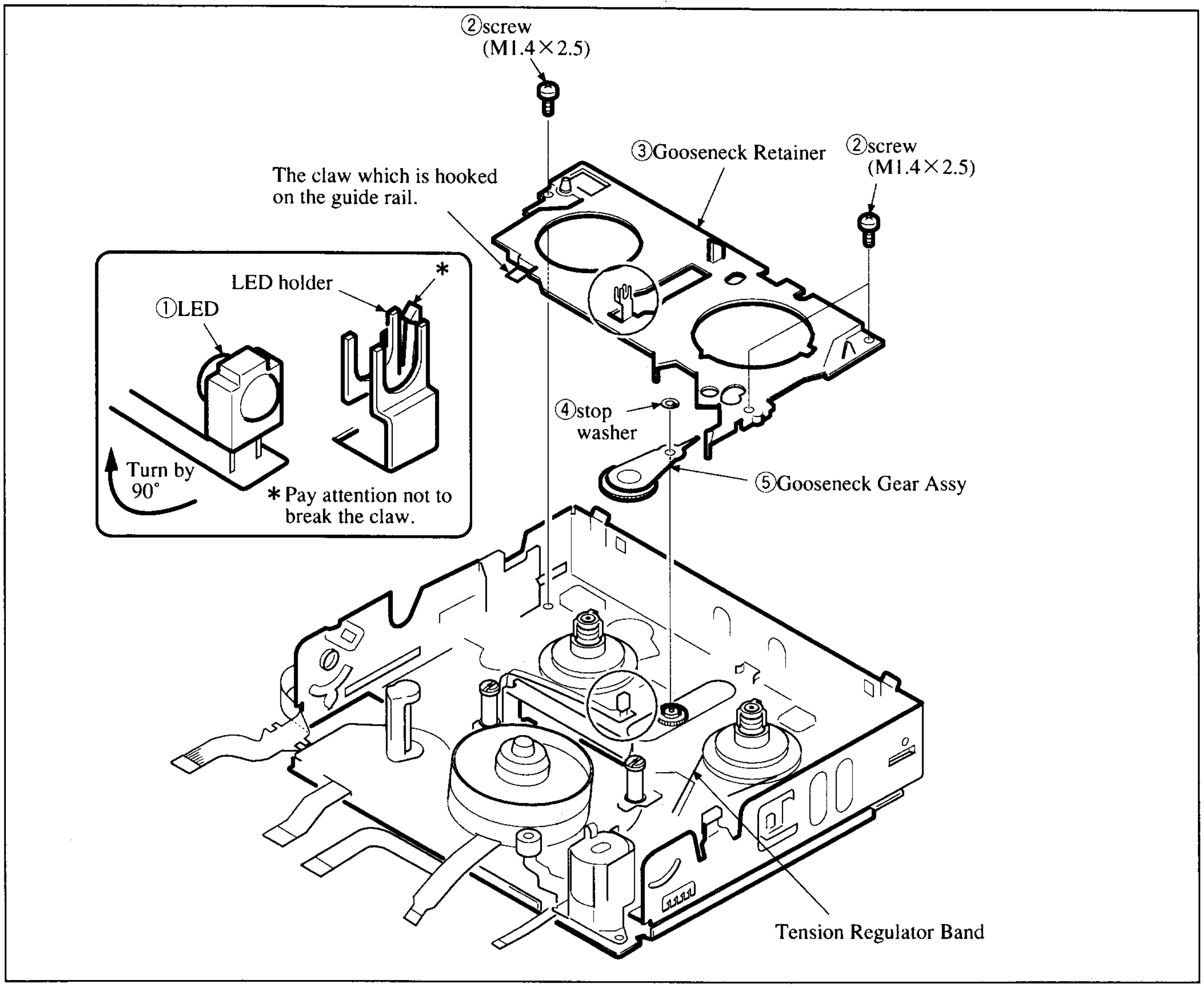

②screw
(M1.4×2.5)
③Gooseneck Retainer
②screw
(M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
Turn by 90°
* Pay attention not to break the claw.
④stop washer
⑤Gooseneck Gear Assy
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

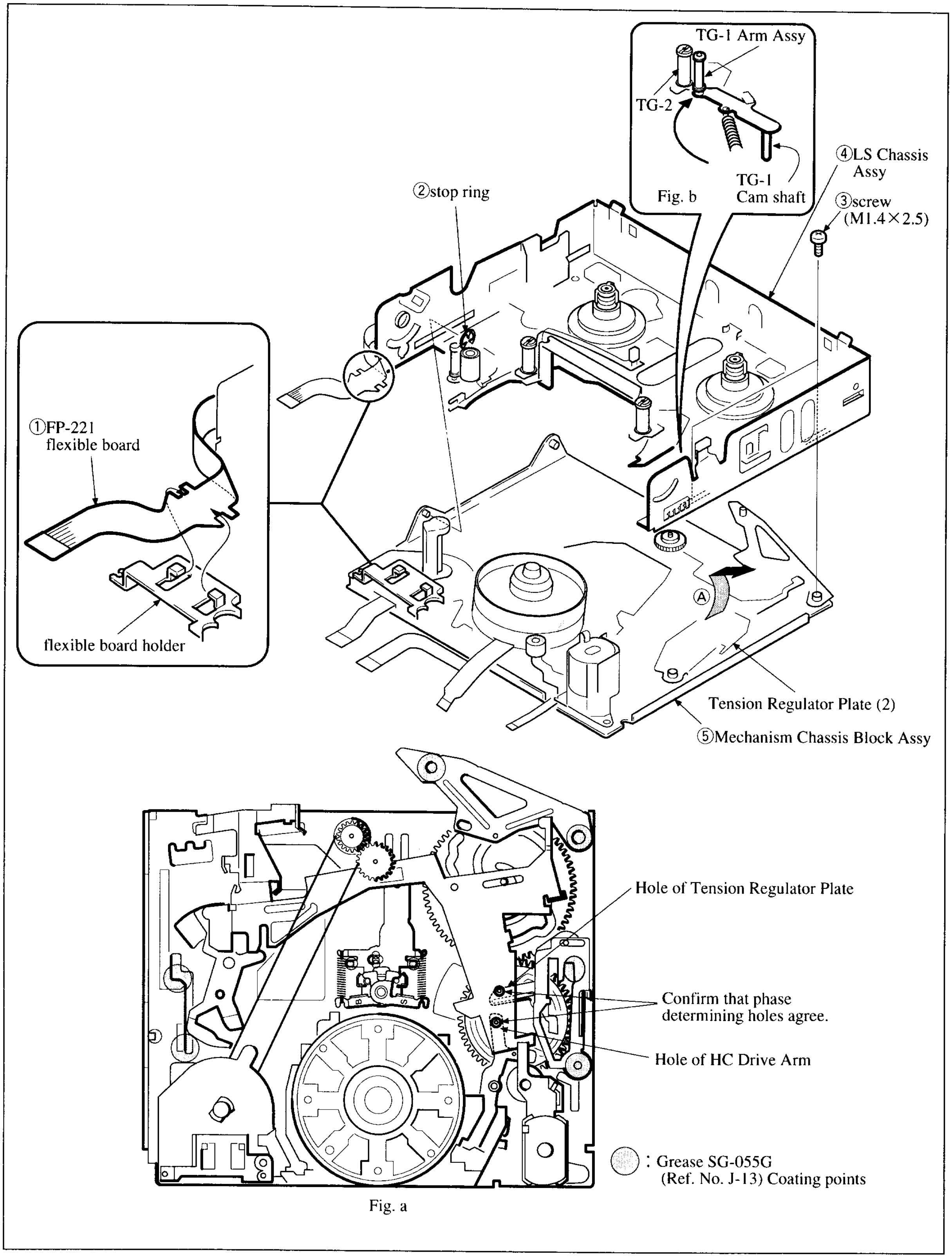

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
Fig. b
④LS Chassis Assy
②stop ring
③screw (M1.4×2.5)
①FP-221 flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase determining holes agree.
Hole of HC Drive Arm
: Grease SG-055G (Ref. No. J-13) Coating points

Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**

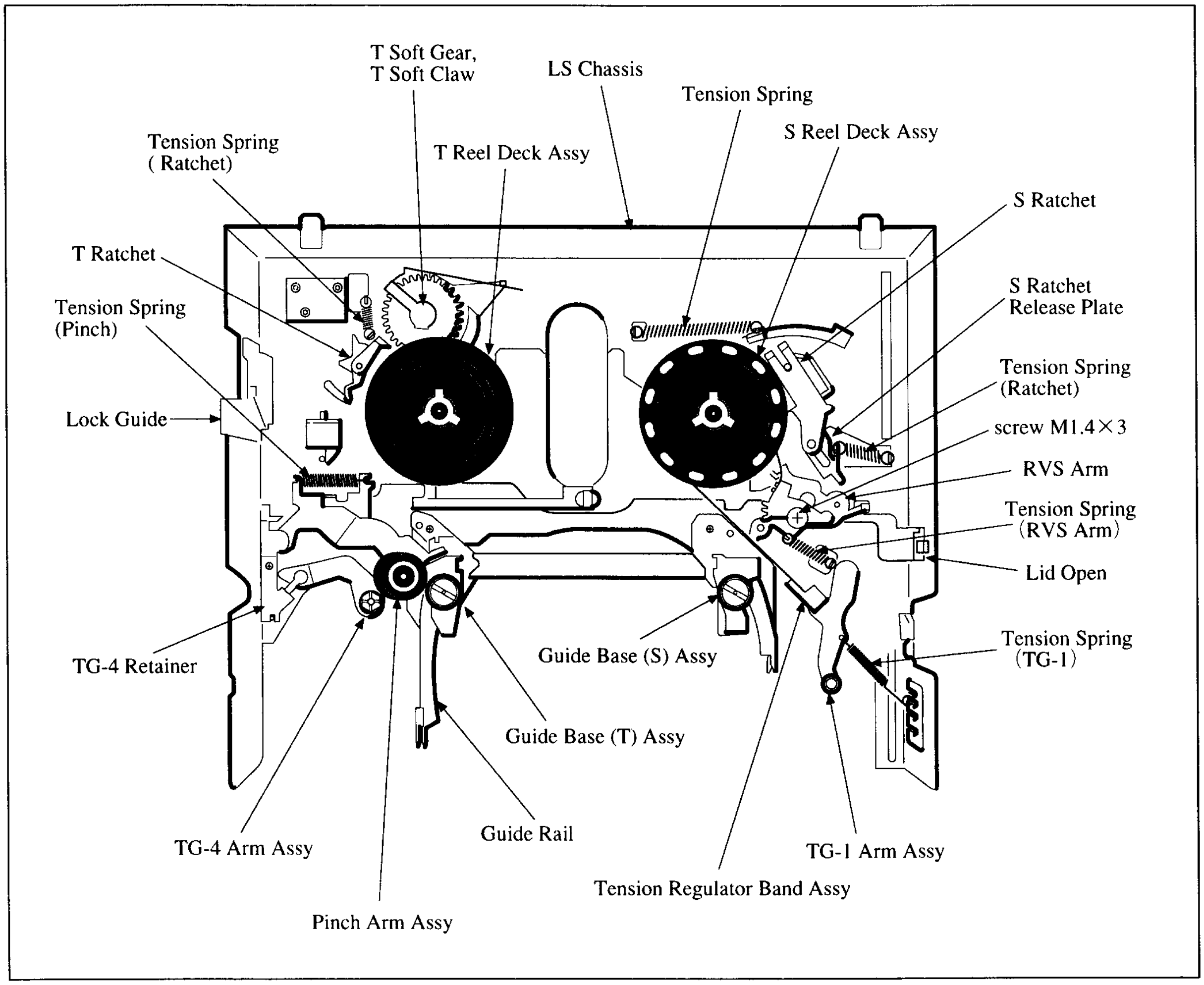

T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
S Ratchet
Release Plate
Tension Spring
(Pinch)
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
Tension Spring
(TG-1)
TG-4 Retainer
Guide Base (S) Assy
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it .
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it .

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

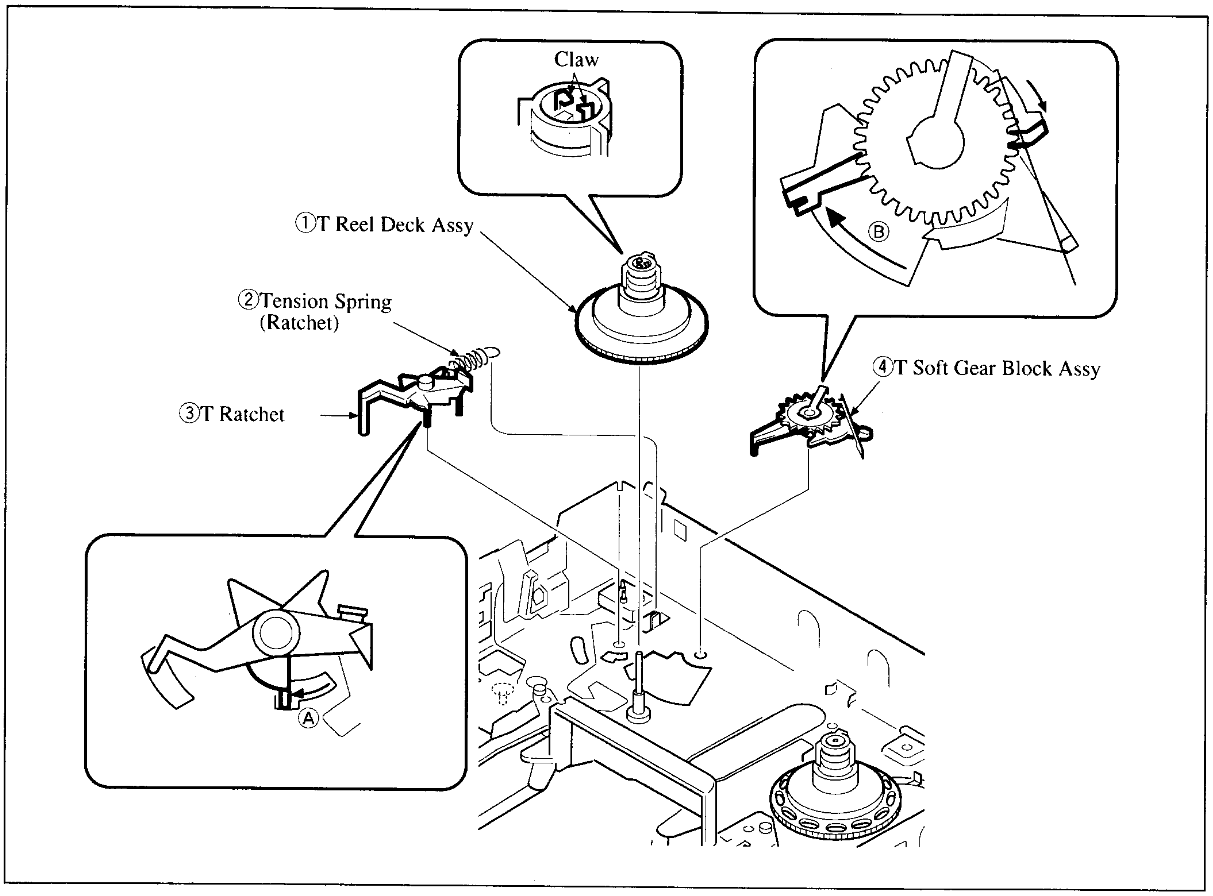


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

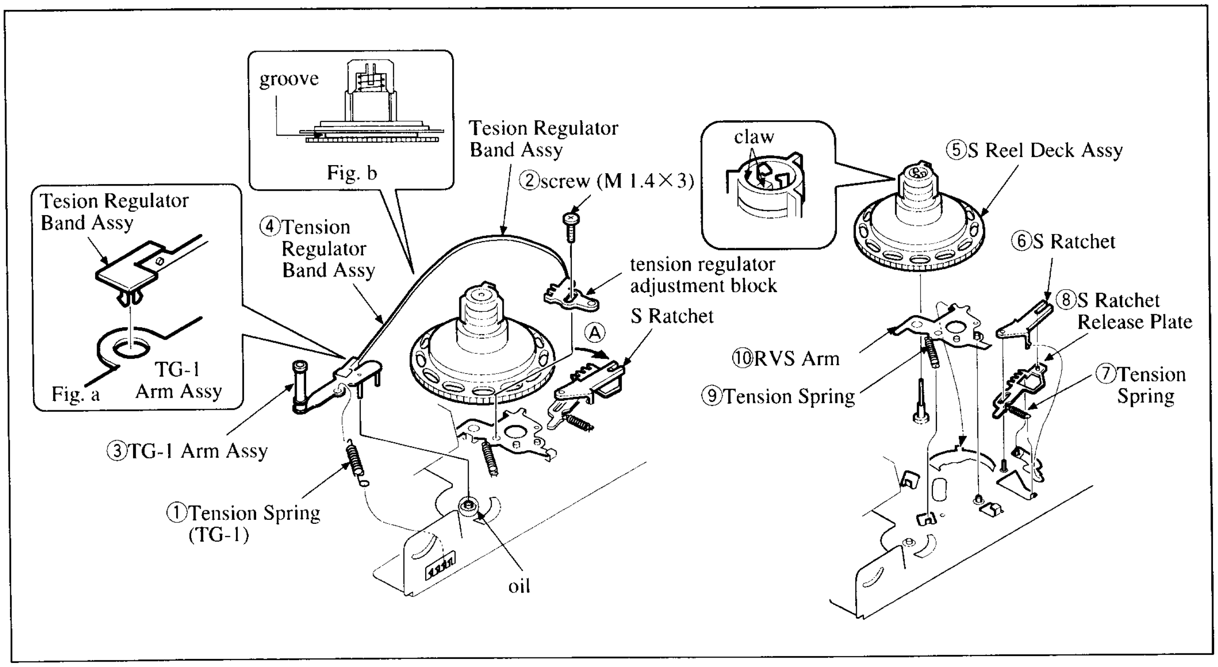

groove
Fig. b
Tesion Regulator Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
⑥S Ratchet
⑧S Ratchet Release Plate
⑦Tension Spring
Tesion Regulator Band Assy
④Tension Regulator Band Assy
tension regulator adjustment block
S Ratchet
Ⓐ
⑩RVS Arm
⑨Tension Spring
TG-1 Arm Assy
Fig. a
③TG-1 Arm Assy
①Tension Spring (TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

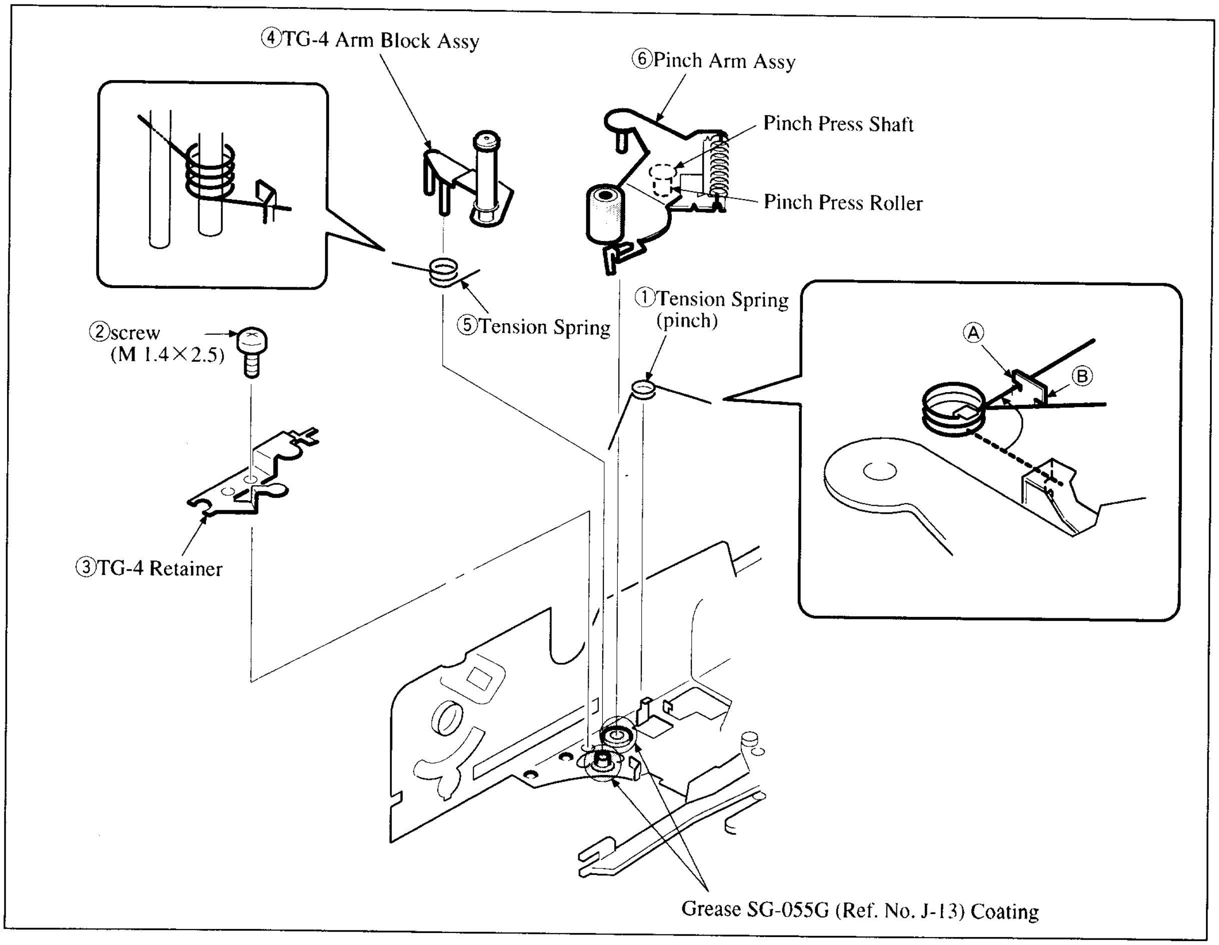

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
⑤Tension Spring
①Tension Spring (pinch)
②screw (M 1.4×2.5)
③TG-4 Retainer
Ⓐ
Ⓑ
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide
(Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
   In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.

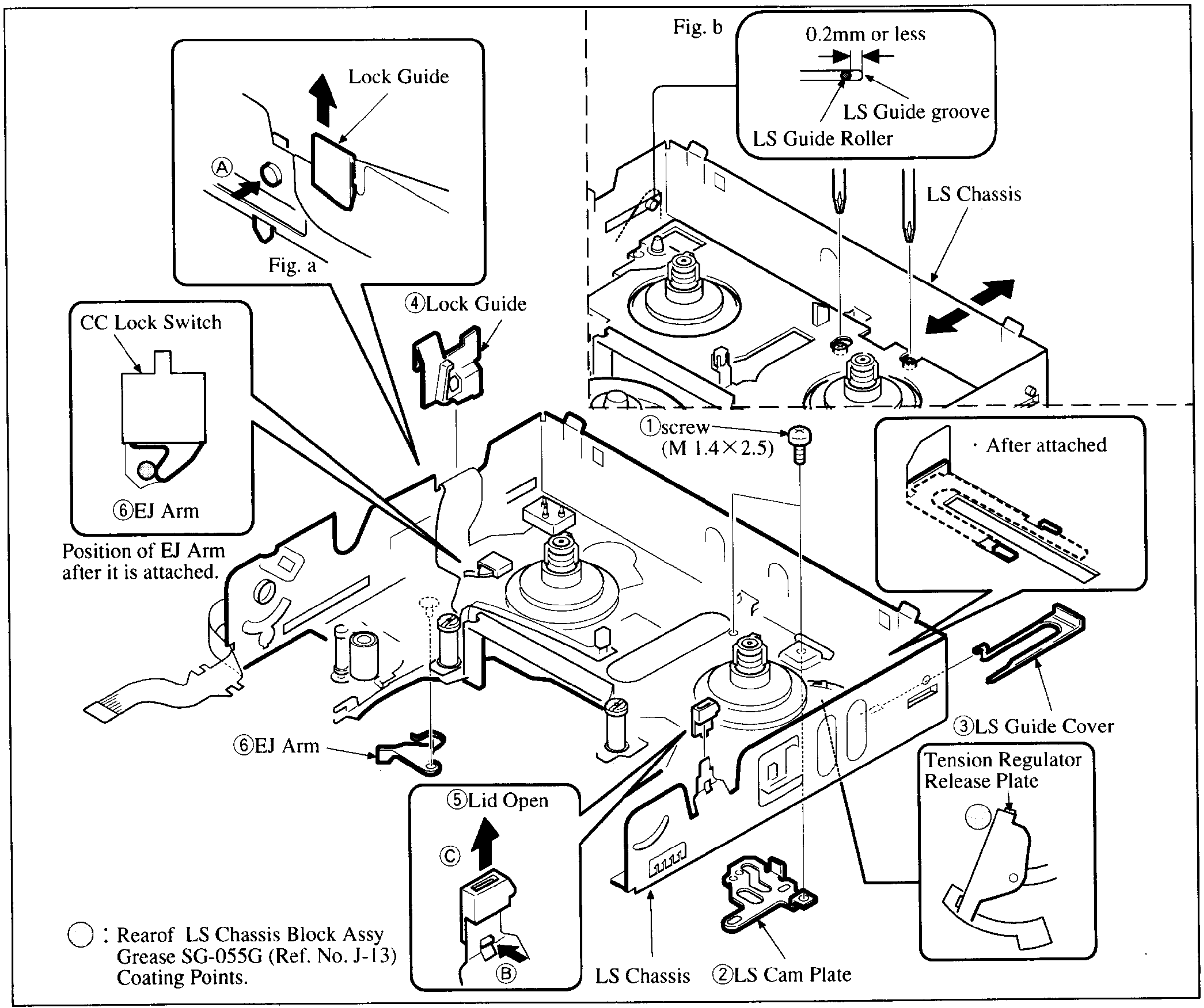

Lock Guide
Ⓐ
Fig. a
④Lock Guide
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
①screw (M 1.4×2.5)
· After attached
③LS Guide Cover
Tension Regulator Release Plate
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.
LS Chassis
②LS Cam Plate

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

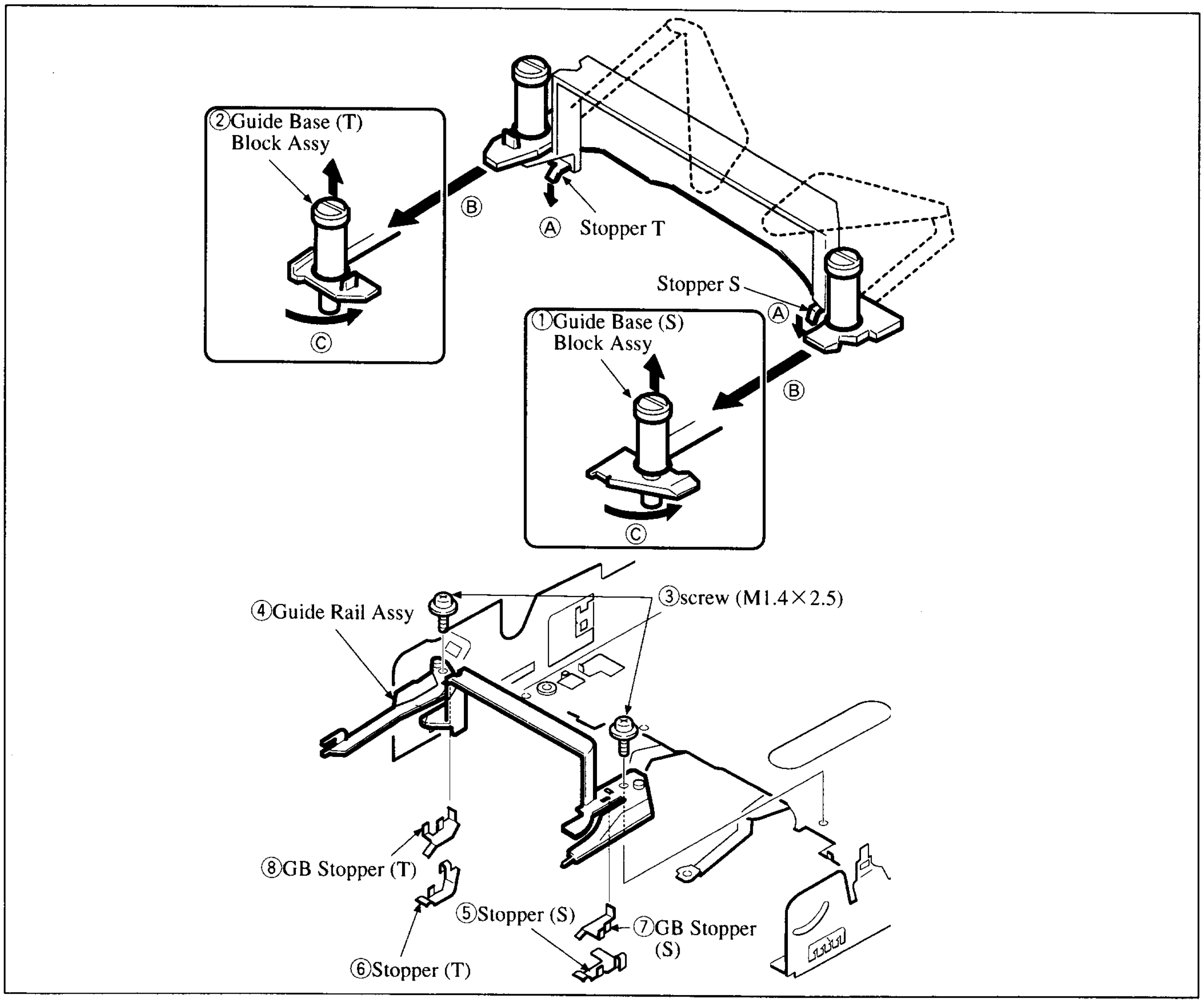
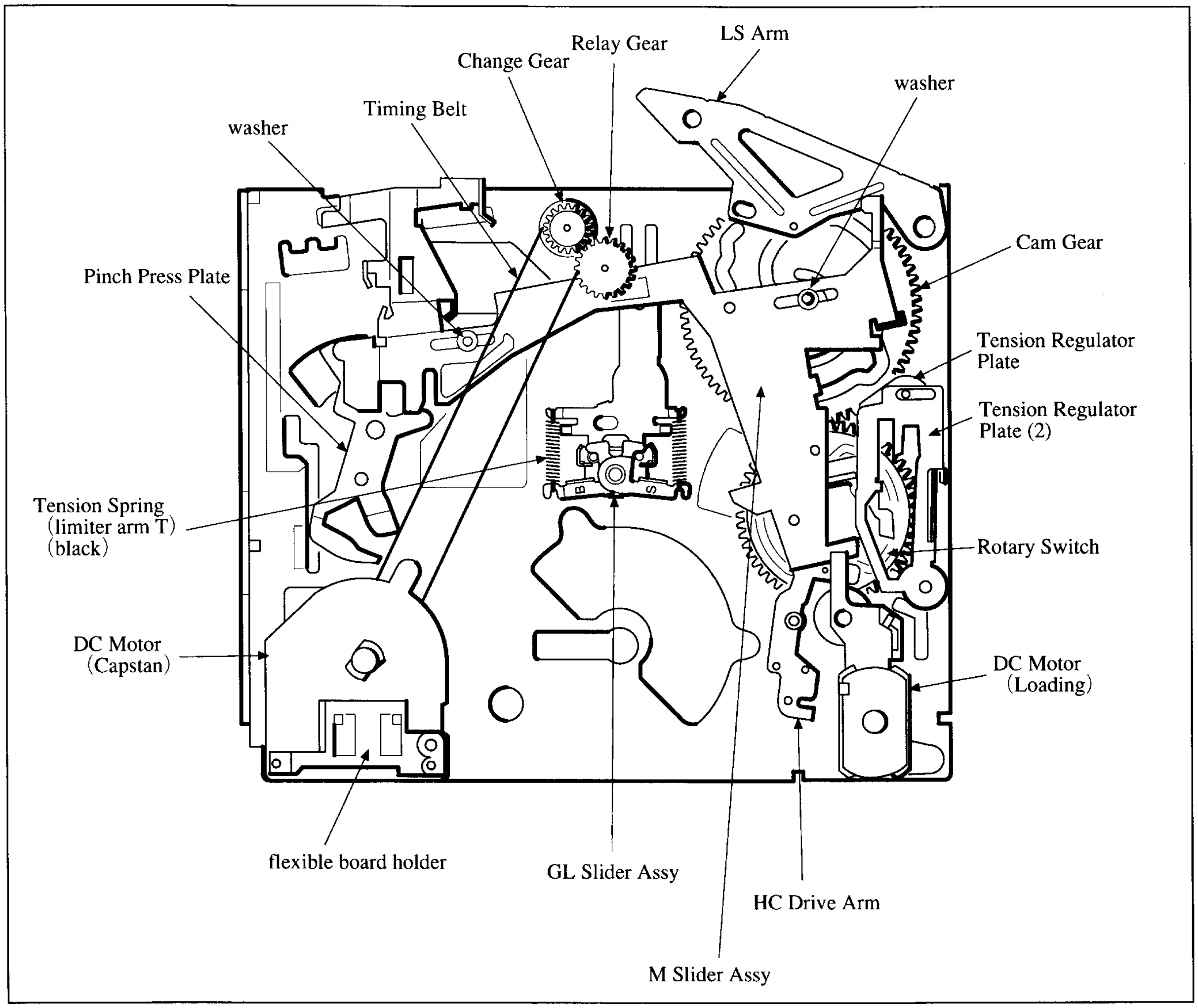

②Guide Base (T)
Block Assy
Ⓑ
Ⓐ
Stopper T
Ⓒ
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper
(S)
⑥Stopper (T)

Fig. 15

- **PARTS CONSTITUTING THE MECHANISM CHASSIS**



Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

3-11. DC Motor Assy (Loading)
(Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.

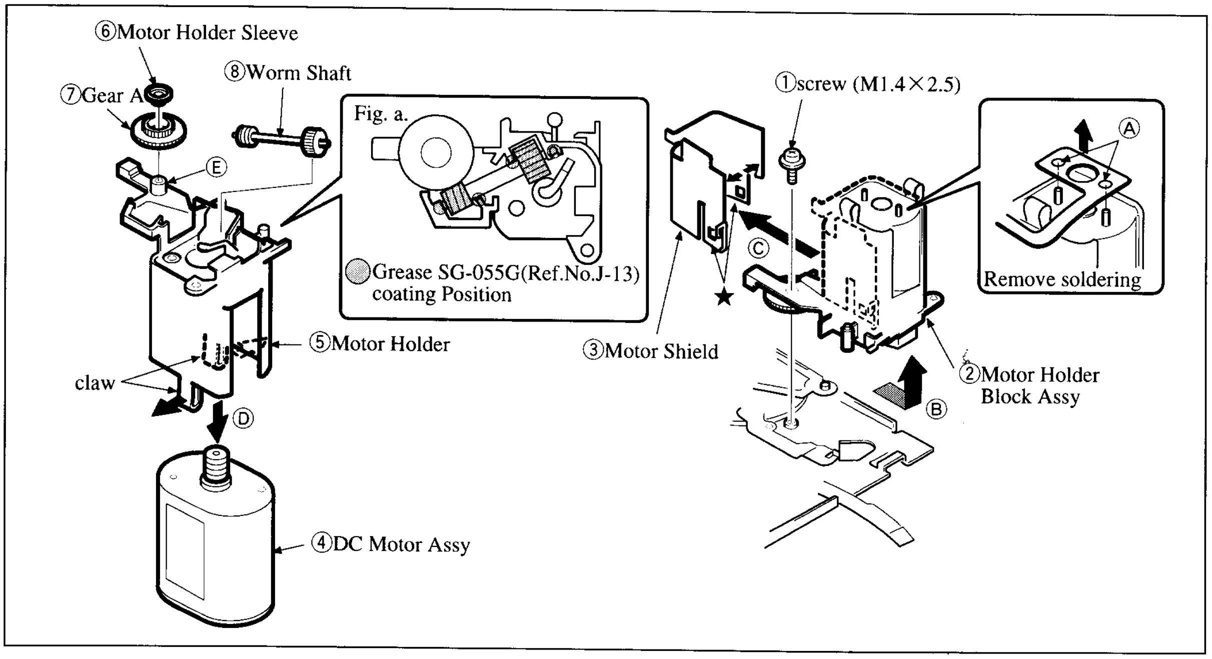

⑥Motor Holder Sleeve
⑧Worm Shaft
⑦Gear A
Ⓔ
Fig. a.
●Grease SG-055G(Ref.No.J-13) coating Position
⑤Motor Holder
claw
Ⓓ
④DC Motor Assy
①screw (M1.4×2.5)
Ⓒ
★
③Motor Shield
Ⓐ
Remove soldering
②Motor Holder Block Assy
Ⓑ

Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk ＊Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).

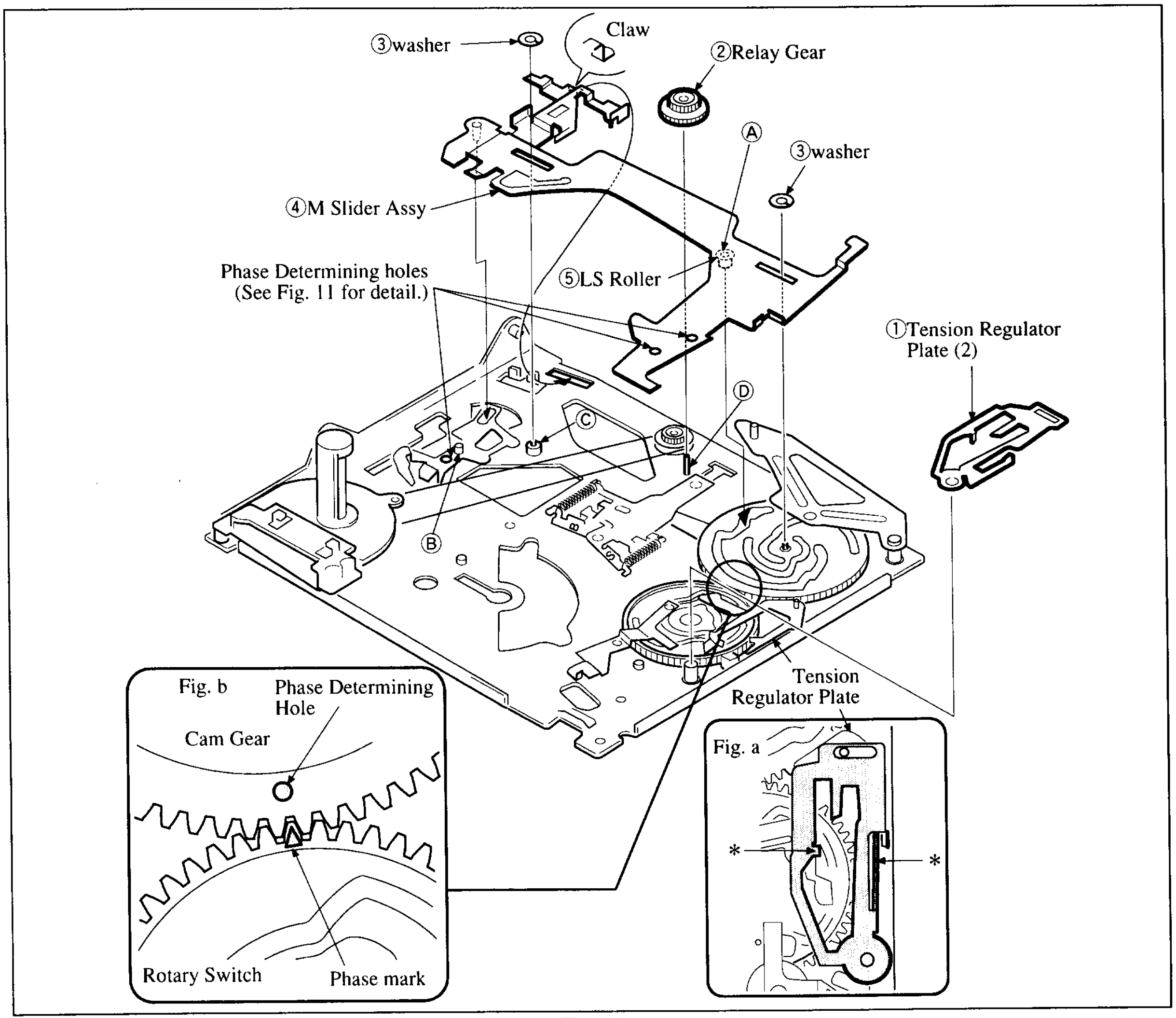

③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes
(See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator
Plate (2)
Ⓓ
Ⓒ
Ⓑ
Tension
Regulator Plate
Fig. b
Phase Determining
Hole
Cam Gear
Rotary Switch
Phase mark
Fig. a
＊
＊

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

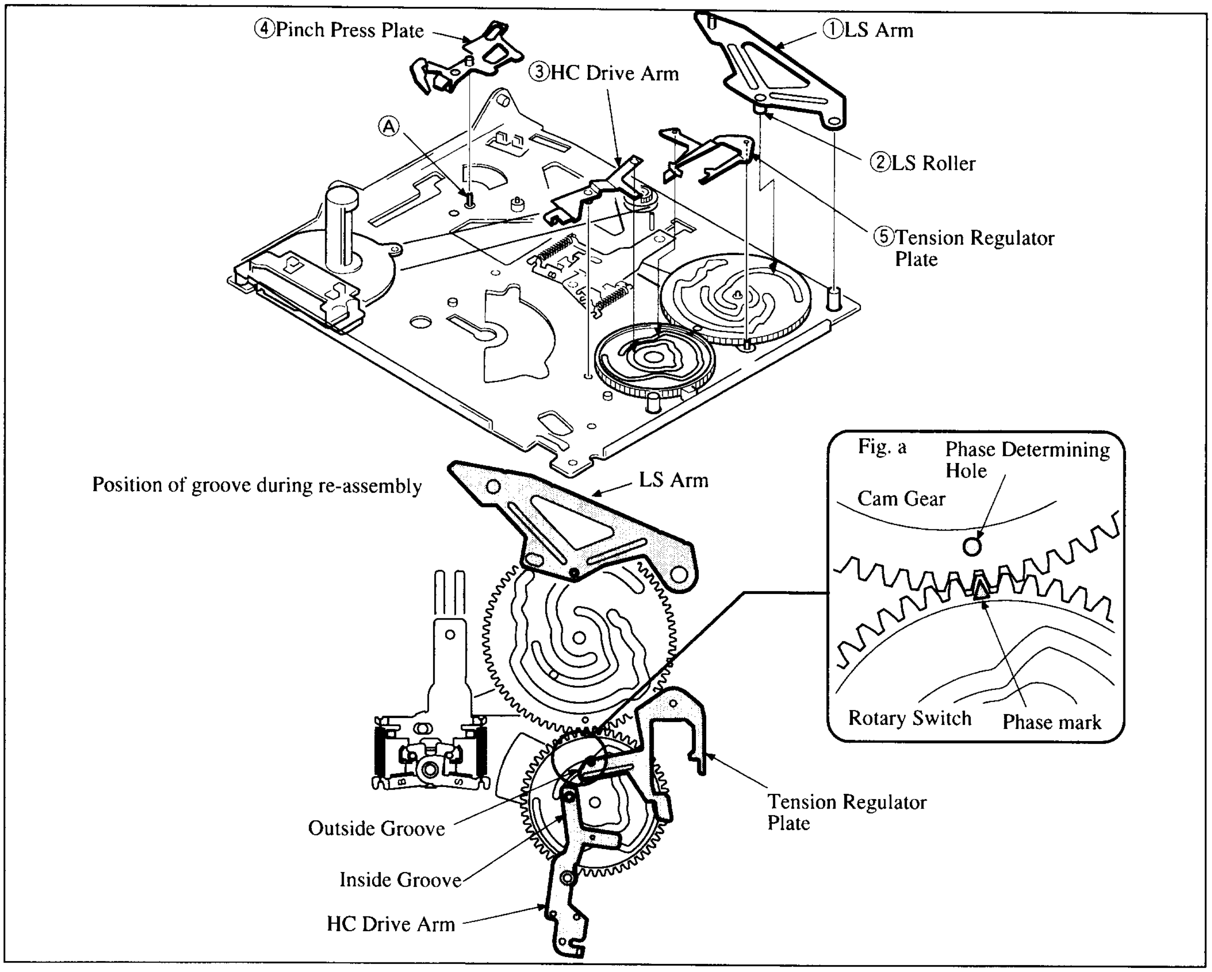

④Pinch Press Plate
①LS Arm
③HC Drive Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Position of groove during re-assembly
LS Arm
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

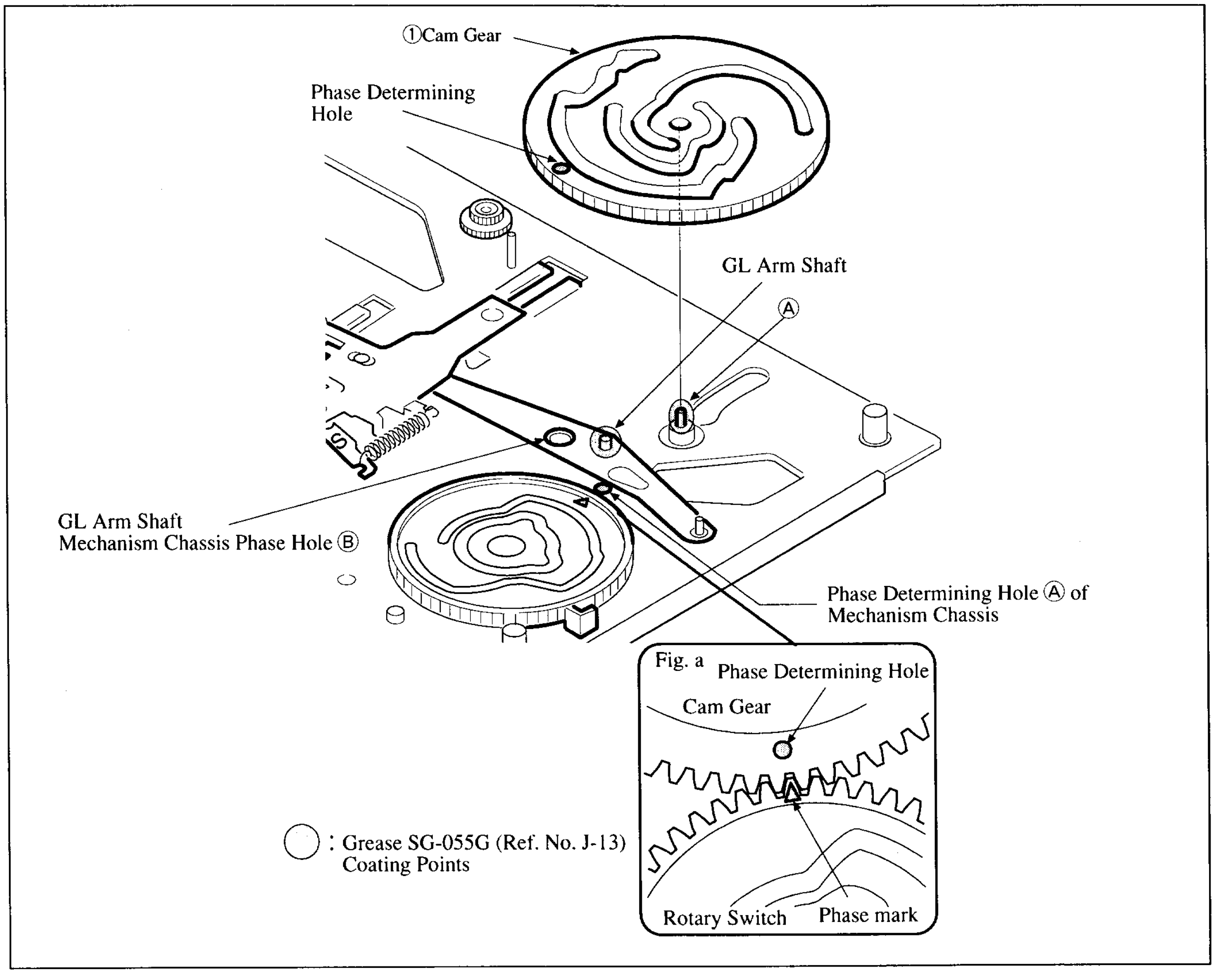

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft
Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

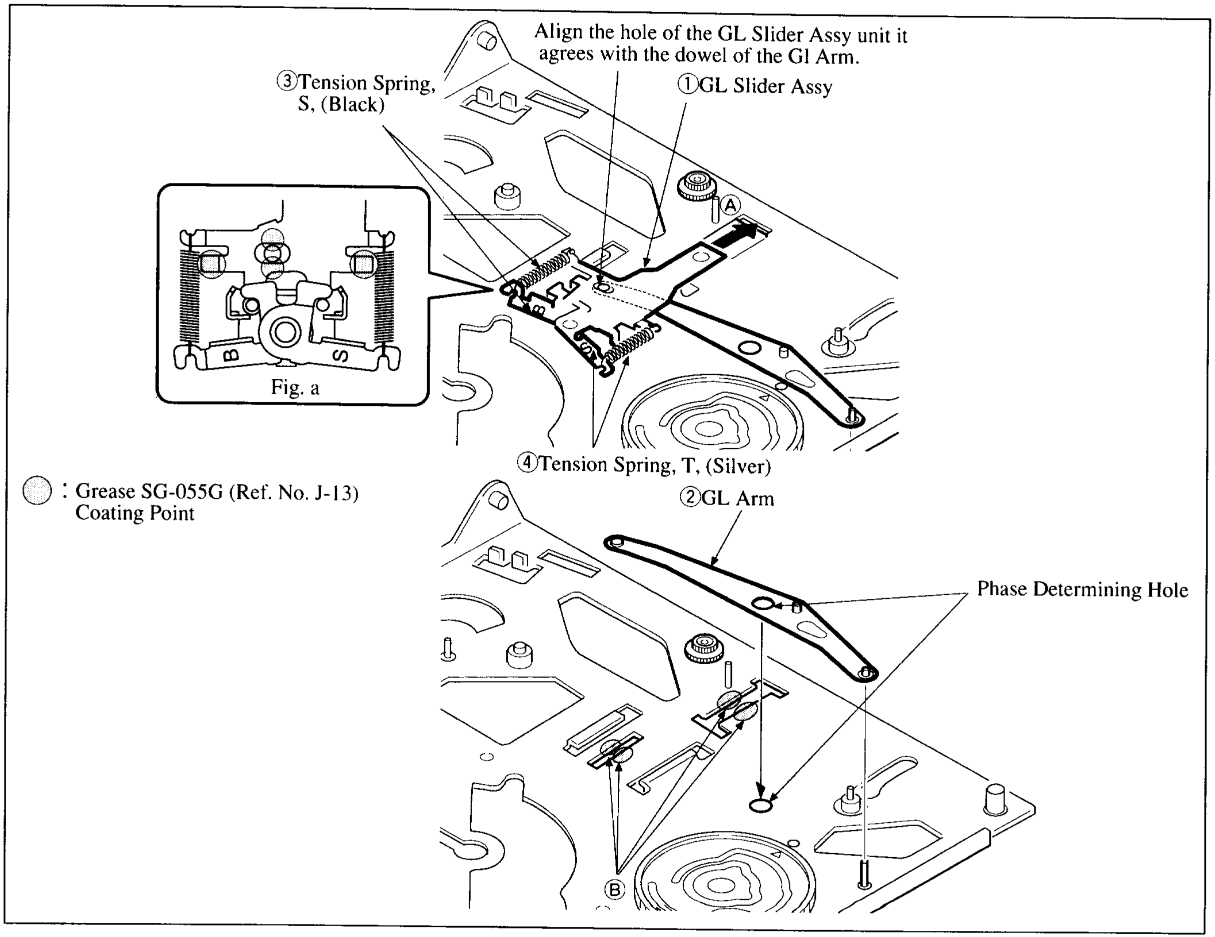

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
B
S
Fig. a
④Tension Spring, T, (Silver)
○ : Grease SG-055G (Ref. No. J-13) Coating Point
②GL Arm
Phase Determining Hole
Ⓑ

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

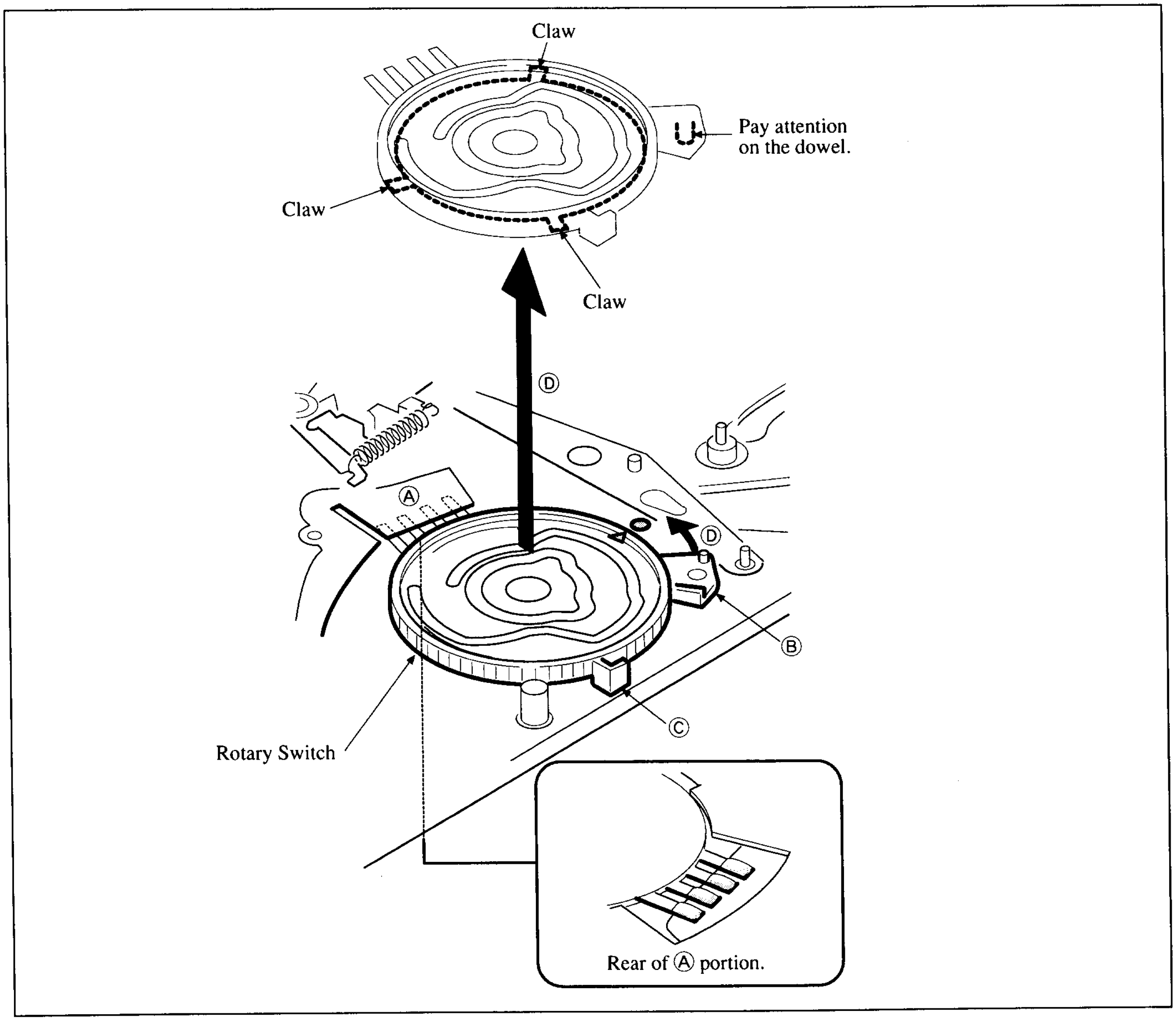


Fig. 22

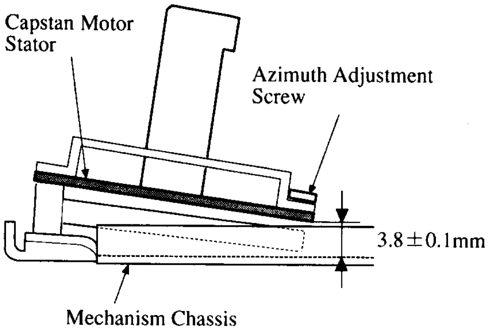
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor Stator
Azimuth Adjustment Screw
3.8±0.1mm
Mechanism Chassis

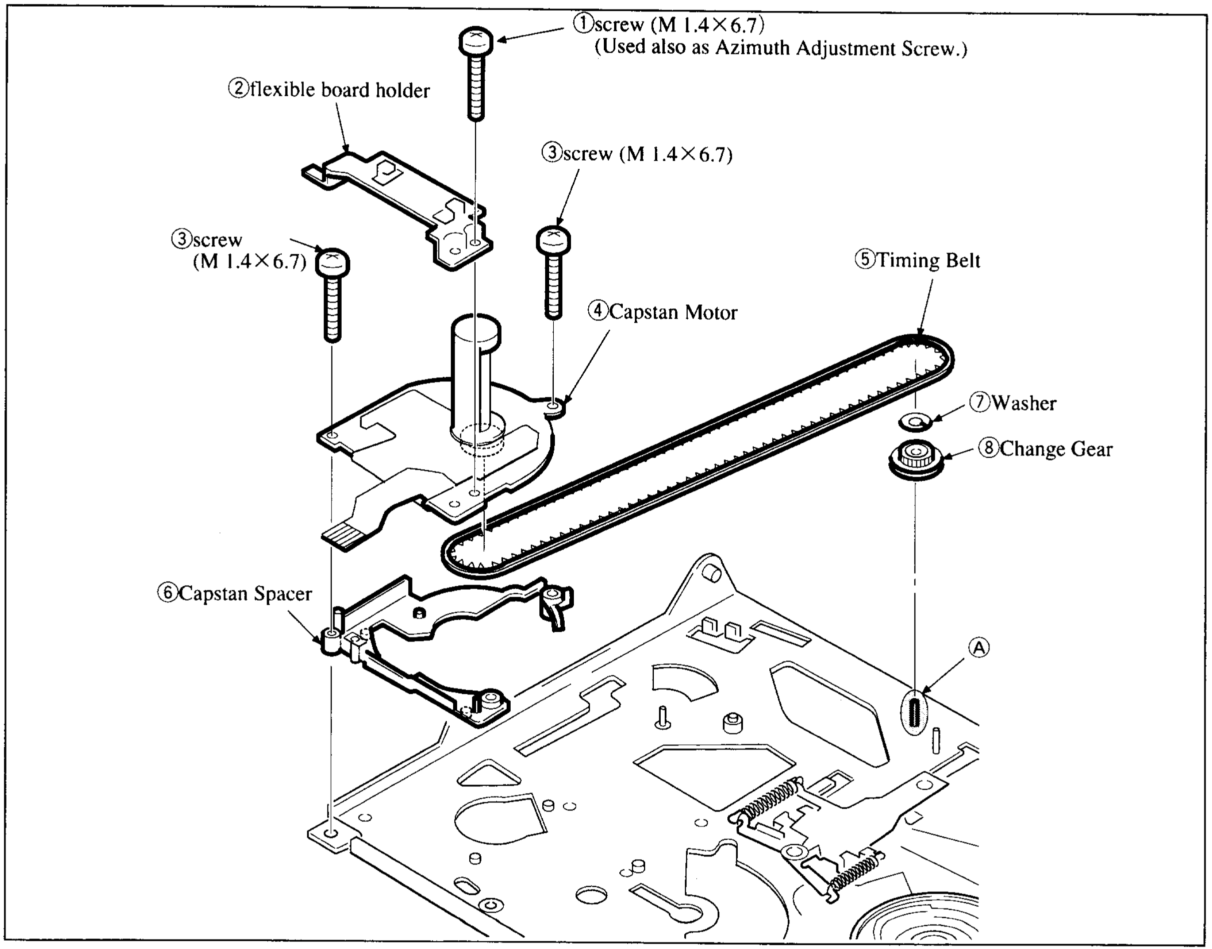

①screw (M 1.4×6.7)
(Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw
(M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

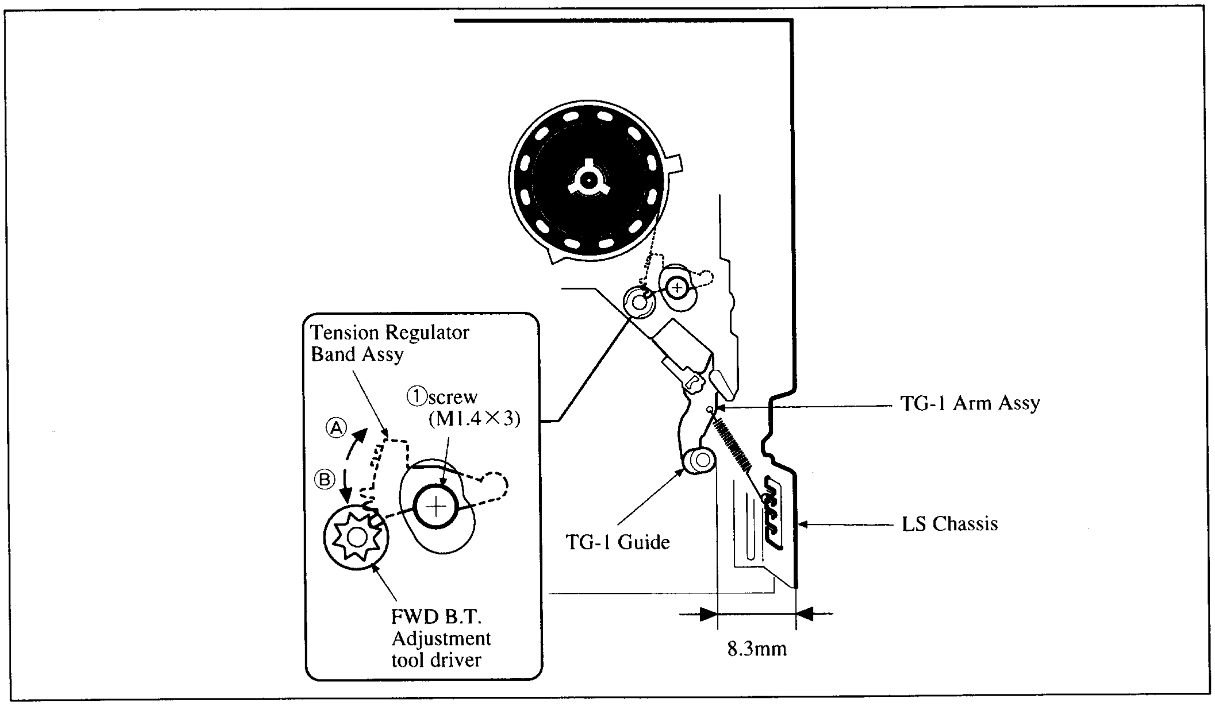

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Guide
TG-1 Arm Assy
LS Chassis
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

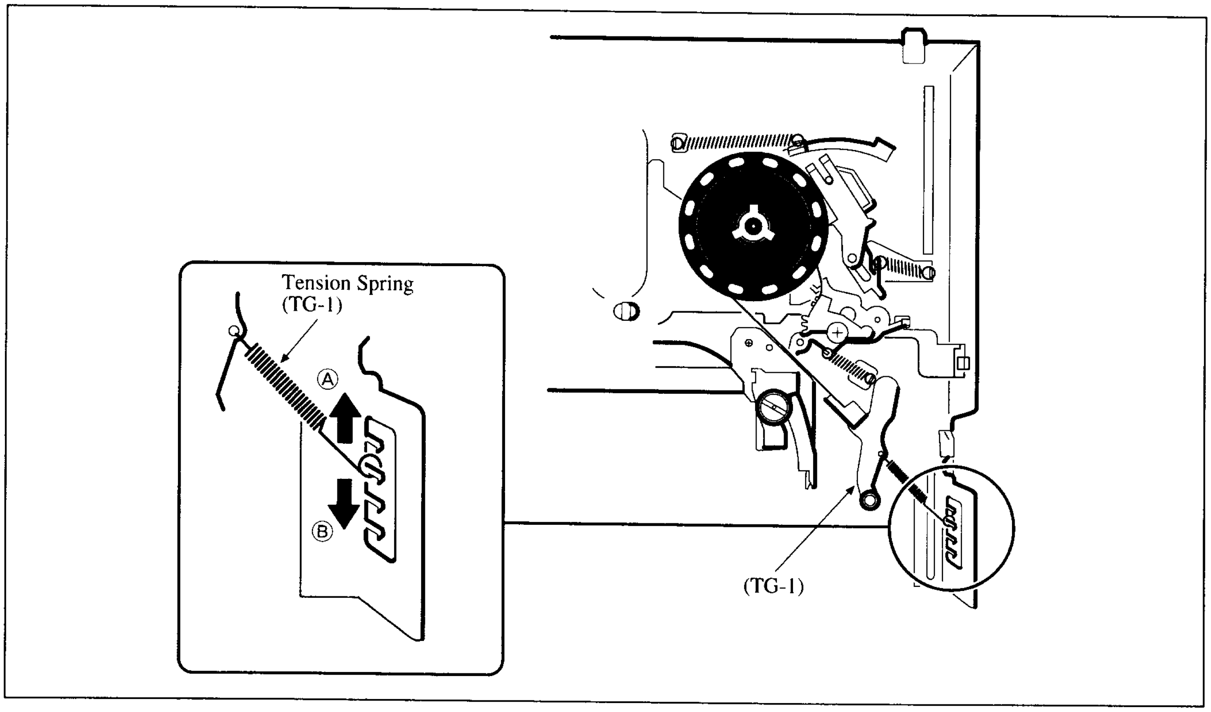


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose:	Adjusts the head linearity.
Adjustment Error:	Noise appears on top and bottom of display when playing back the tape recorded by other machines.

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

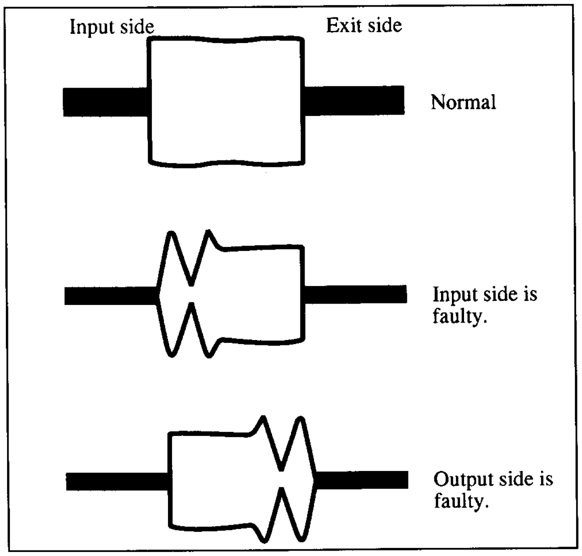


Fig. 26

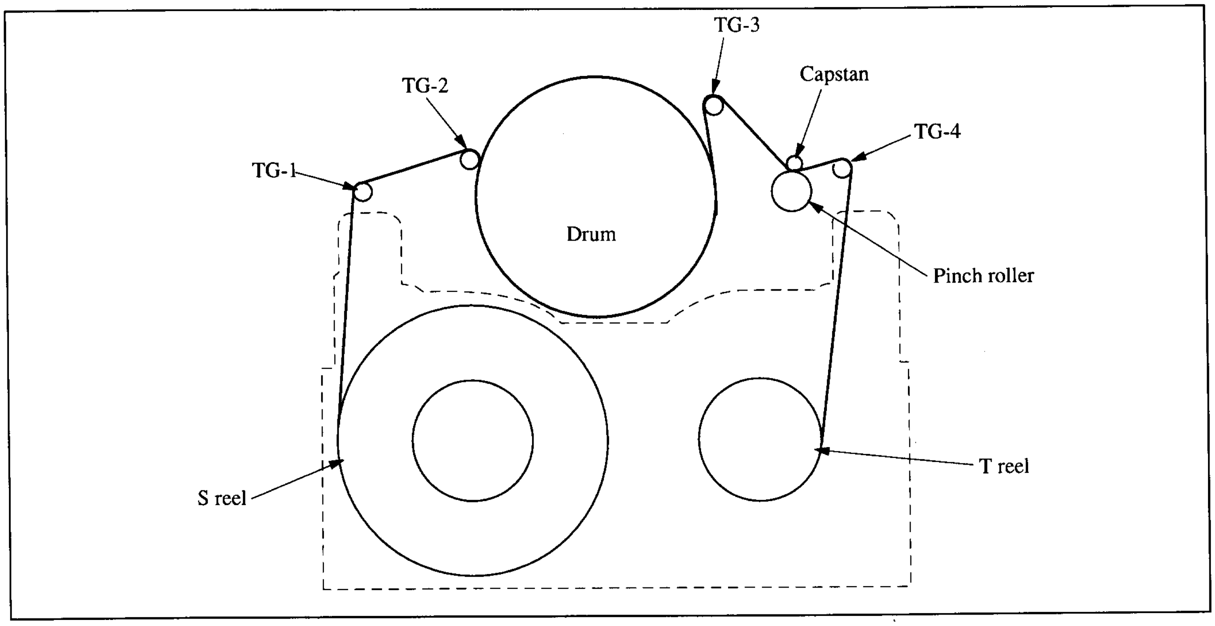


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

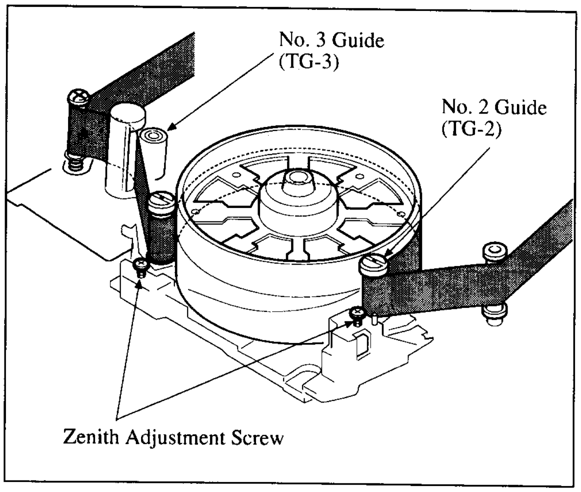


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

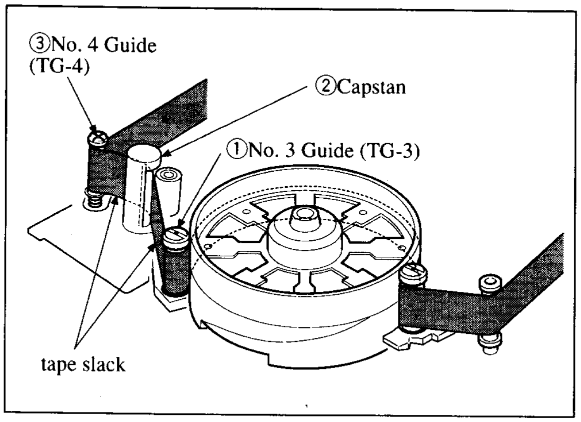


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

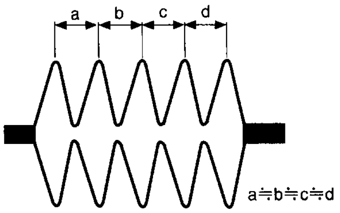


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

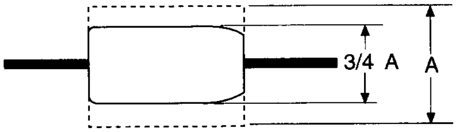


Fig. 31

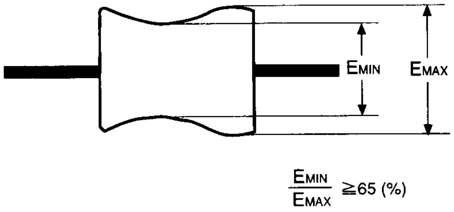


Fig. 32

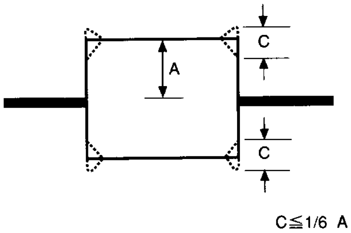


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

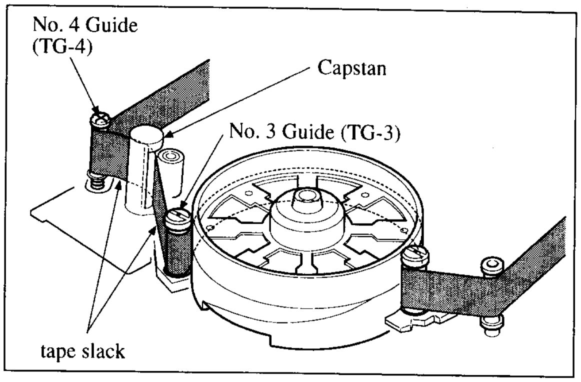


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

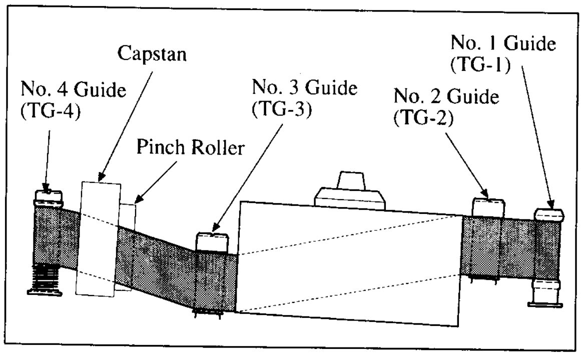
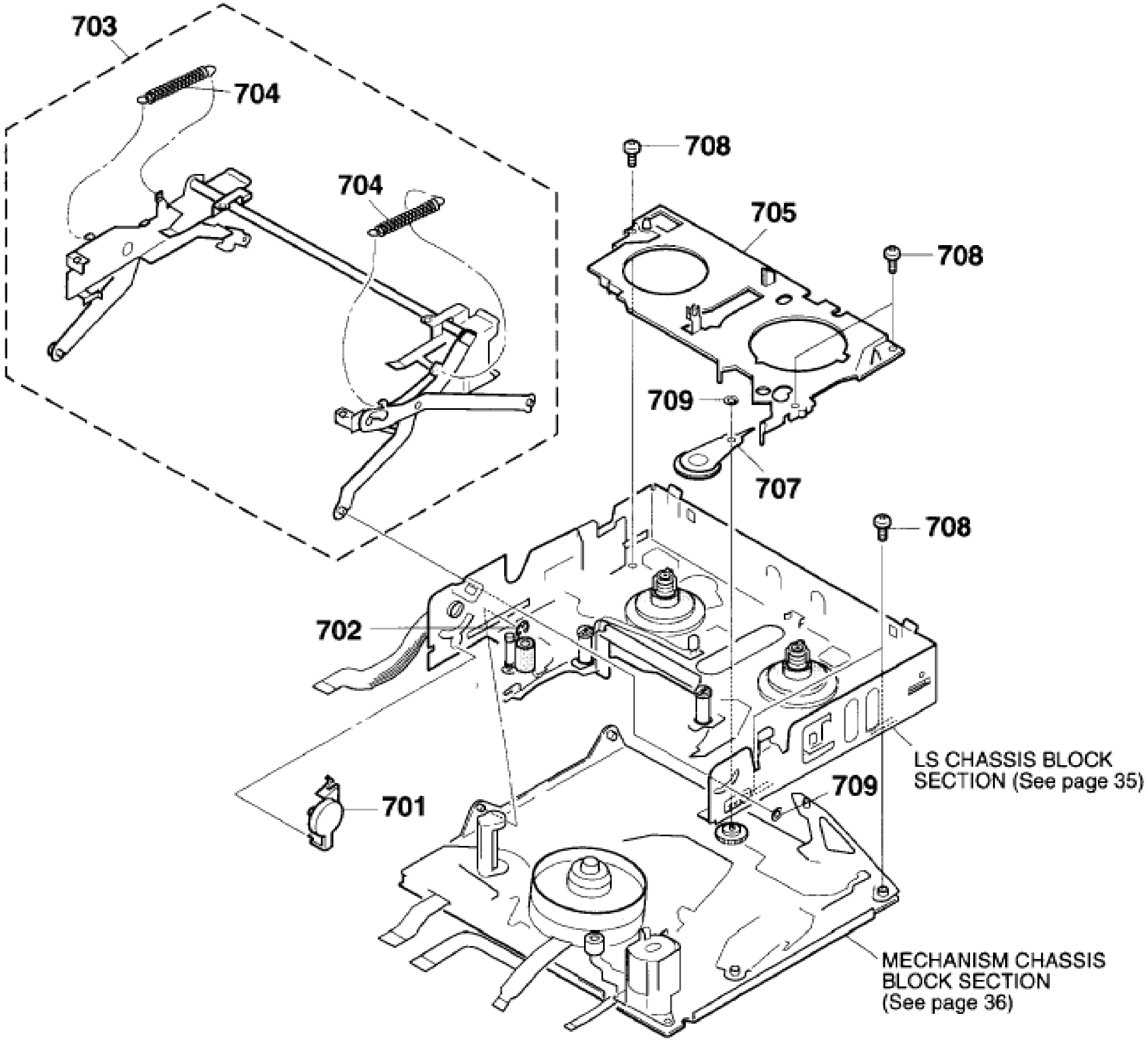


Fig. 35

5-1. Cassette Compartment Block Section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LS CHASSIS BLOCK SECTION (See page 35)
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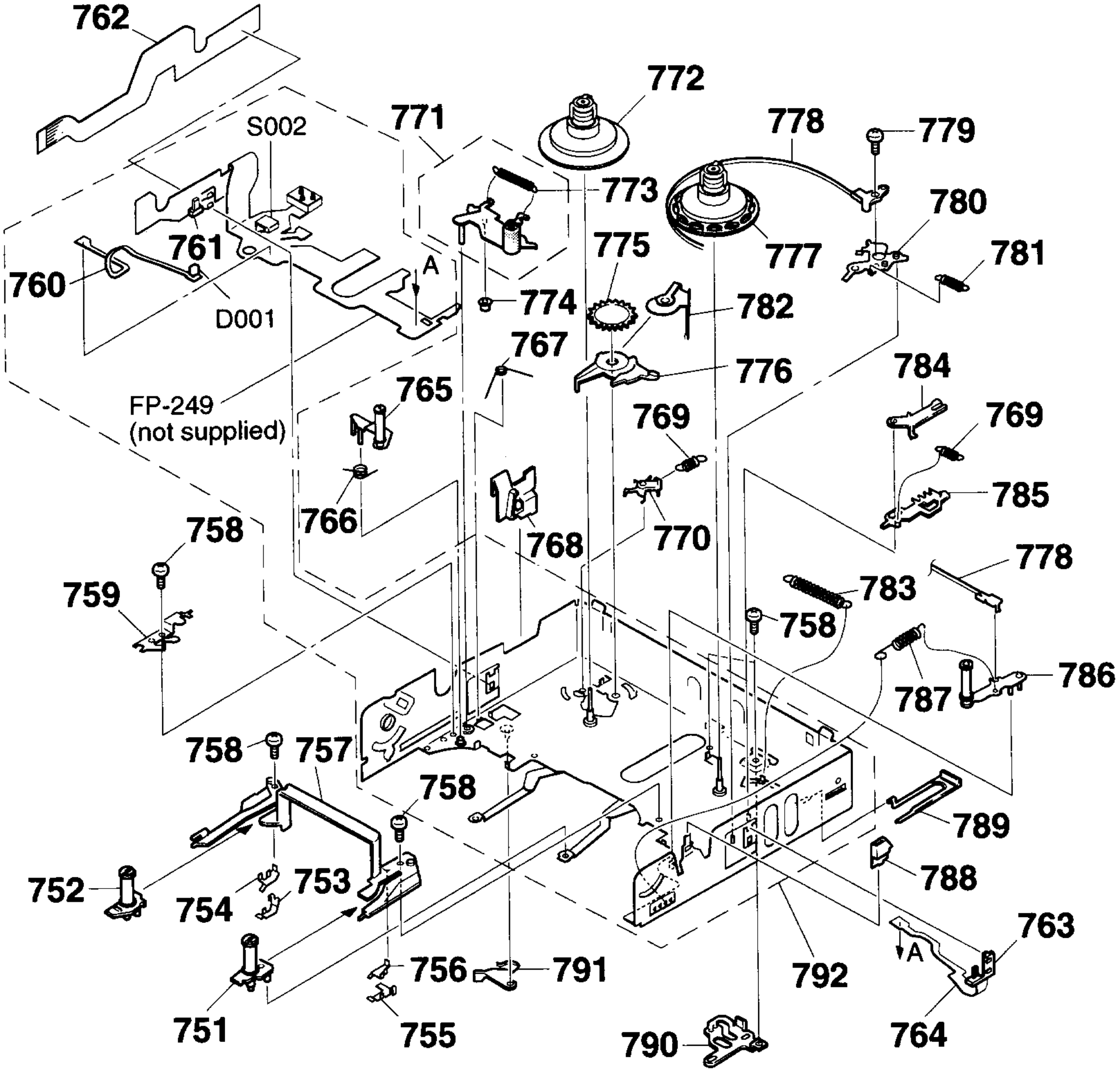
MECHANISM CHASSIS BLOCK SECTION (See page 36)

5-2. LS Chassis Block Section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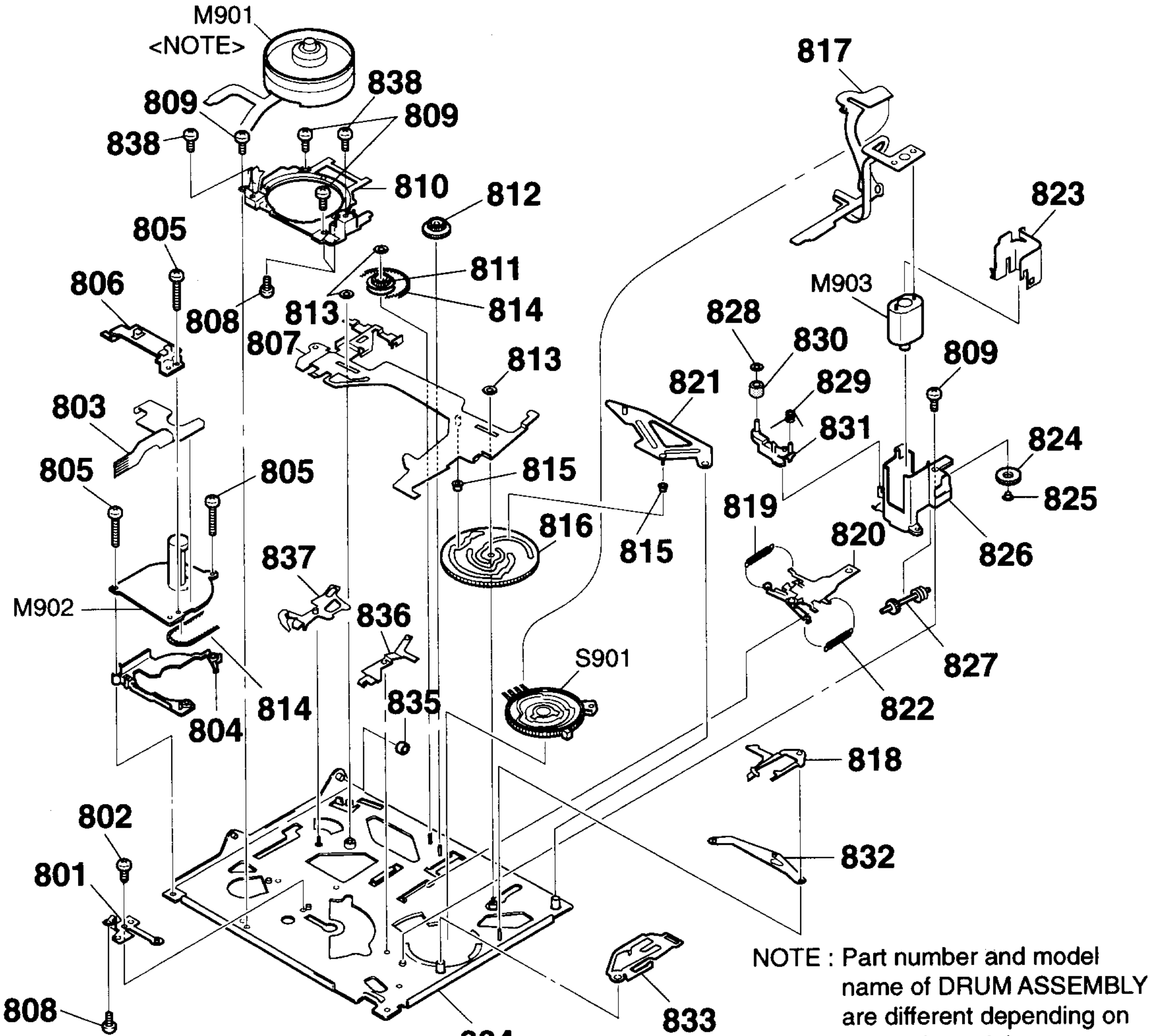
5-3. Mechanism Chassis Block Section


M901
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NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.